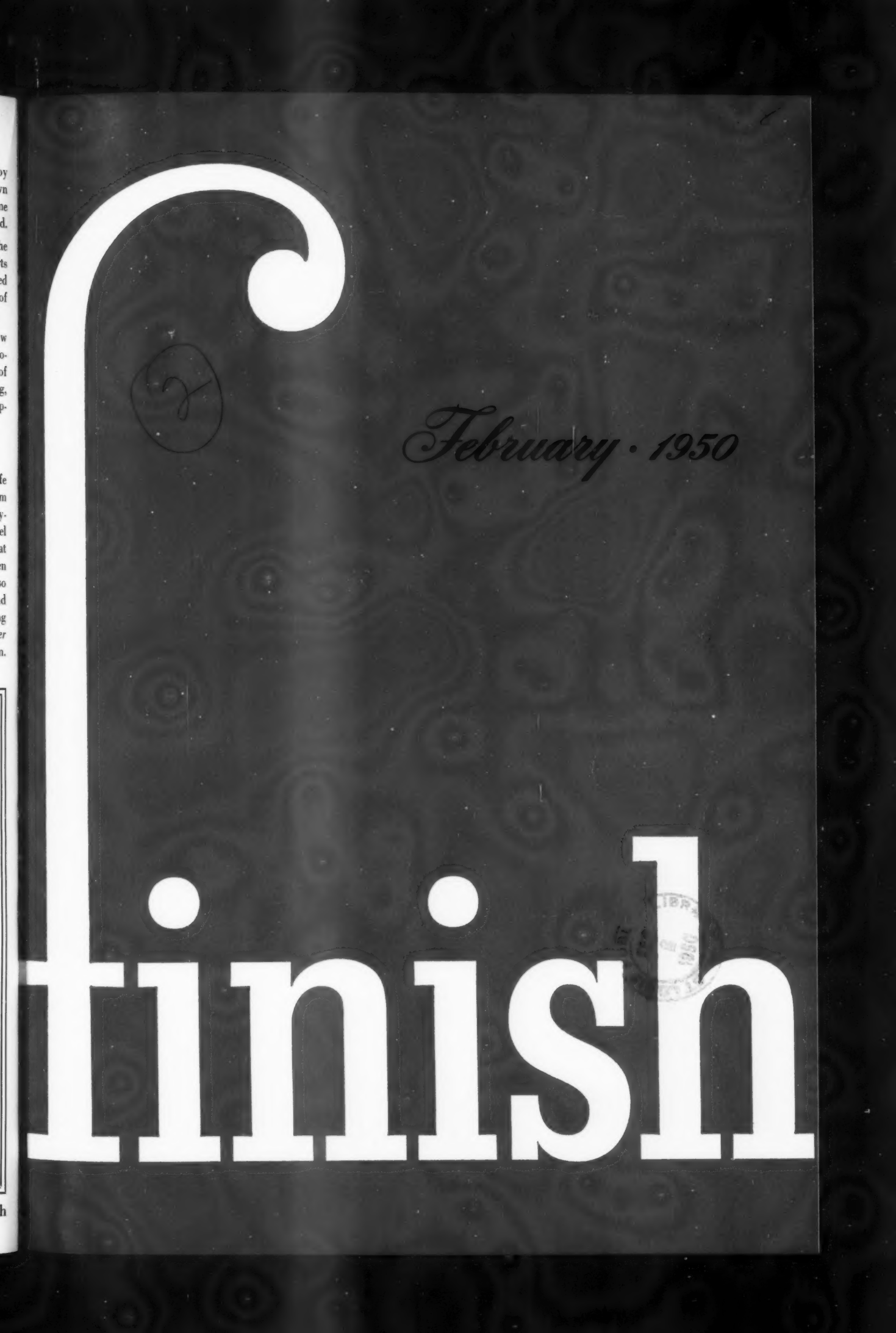
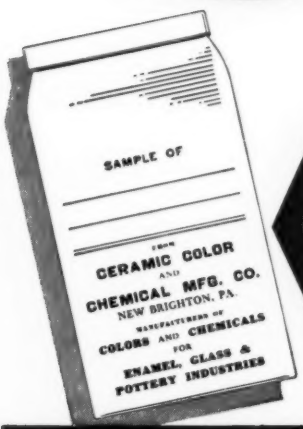

February · 1950
finish

DON'T SEND US A CHAMELEON

But...

"CERAMIC" CHEMICALS to meet your enamel needs...

- Color Oxides
- Screening Colors
- Smelter Color Compounds
- Printing, Graining, Stamping
- Banding, and Decal Colors



WE'LL SEND A SAMPLE PRETESTED TO MEET YOUR PRODUCTION ROUTINE

You can send us practically anything you want as a color sample for us to match. But chameleons are out. For once we send you a sample color and you adopt it, that's what you're going to get, without change from month to month, from year to year.

We are proud of the reputation we have for ability to furnish the *exact color* you want *in your finished ware.*

To do so requires a discerning eye for degrees of hues and shades . . . expertness in formulation to match a desired color . . . and *practical knowledge of the effect of production routine on the oxides used.*

Let us show you what we can do on your color problem—we'll send a sample to match your specimen and specifications—in the oxide or fired piece, or both.

CERAMIC COLOR & CHEMICAL MFG. CO.
New Brighton, Pa., U.S.A.

HEMMING
CERAMIC COLORS
TRADE MARK

Better Adhesion
in Low Fire Enameling

OPAX S

Enamelers find many practical benefits through the use of OPAX S as the mill addition opacifier in the new low firing super-opaque type of zirconamels. Increases in reflectance values result. Working properties of the enamel are improved. Scumming from over firing is eliminated. Satisfactory glass and texture is assured in a wider firing range. Color stability, high abrasion resistance and other benefits are realized.

Why not take advantage of these improvements with OPAX S. Our field engineers will be glad to assist. No obligation. Write us.

- *Improved Opacity*
- *Uniformity of Color*
- *Improved Finish*
- *High Scratch Resistance*

Typical Low Fire Zirconamels

MILL ADDITION OPACIFIERS		Reflectance values at application weight of		
		35 grams /ft²	40 grams /ft²	45 grams /ft²
TYPE A	No Opacifier	73.0	75.6	77.4
	2% Opax S	74.6	77.0	78.7

TYPICAL INCREASES IN REFLECTANCE VALUES WITH LOW FIRE* ZIRCONAMELS

*OPAX S assures comparable advantages when used in high fire zirconamels.

TAM PRODUCTS
Registered U. S. Pat. Off.

TAM and OPAX are registered trademarks

TITANIUM ALLOY MFG. DIVISION
NATIONAL LEAD COMPANY

Executive and Sales Office: 111 BROADWAY, NEW YORK CITY · General Offices, Works, and Research Laboratories: NIAGARA FALLS, N.Y.

From the Editor's mail . . .

need stainless finish for inside of machine pressed iron cylinder

Dear Sirs:

At the present time we have a problem that we feel that you may be able to be of assistance to us.

Our problem is to get some sort of a stainless finish that will adhere to the inside of a machine pressed iron cylinder. We have contacted manufacturers of metallizing equipment and they do not recommend that process. We have contacted some paint manufacturers and they do not guarantee that application.

If you would be so kind, we would appreciate your thoughts and help on this particular problem.

Oscar Schmidt, Jr., President
Cincinnati Butchers' Supply Co.
P.O. Box D
Elmwood Place Station
Cincinnati 16, Ohio

any readers knowing of a solution to this problem are invited to pass their ideas on to Mr. Schmidt.

---

overseas interest in "safe transit"

Gentlemen:

We should thank you to kindly let us know whether there are books about packing of enameled metal pieces, in particular electric cookers.

Are there organizations which would be in a position to give us advice and information regarding this packing?

In particular, can you let us have the address of the National Safe Transit Committee?

E. Maure
Thermor Chauffage Electrique
87 R. Des Beaumonts
Orleans, France

address of the National Safe Transit Committee is 1010 Vermont Avenue, Washington 5, D. C.—complete information on the Safe

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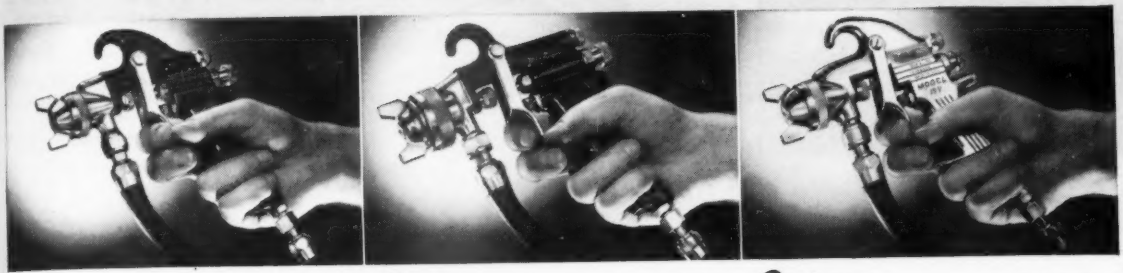
EVERYTHING FOR SPRAY PAINTING — BINKS SPRAY SYSTEMS

3 ways

to better ceramic finishes . . . faster



1st way... use a Model 18V

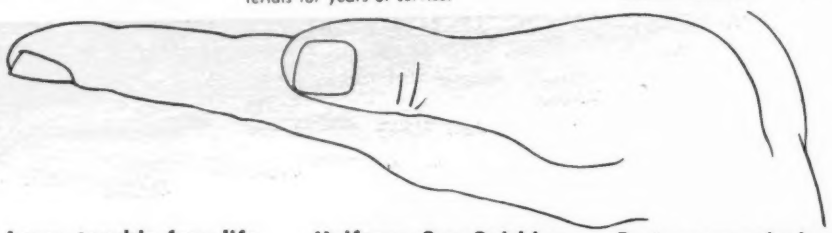
latest addition to the Binks line...a precision production gun for obtaining the finest finishes possible at the lowest cost. In designing this rugged gun, Binks asked users what they wanted in a spray gun. Model 18V is the answer.

2nd way... use a Model 7V

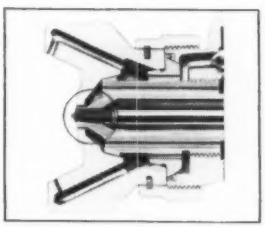
a heavy-duty production gun. This is a long-time favorite with wide acceptance. The gun body is drop-forged aluminum with a tough, black electrolytic coating. All parts are made of long-lasting, wear-resistant materials for years of service.

3rd way... use a Model 19V

a truly remarkable light-weight production spray gun, using the same nozzles as Model 18V. Reduces operator fatigue to a minimum. In common use in refrigeration and other product finishing plants employing ceramic finishes.



Long, trouble-free life **Uniform, fine finishing** **Fast, economical operation**



TUNGSTEN-CARBIDE INSERTS

Tungsten-carbide inserts are fitted on the needle valve and material nozzle of Binks ceramic spray guns as shown in the cutaway drawing. Tungsten-carbide, one of the world's hardest materials, protects these parts from the abrasive action of frit.

Little wonder that Binks ceramic spray guns are the favorites of the ceramic industry! Scientific design has produced economical, long-lasting guns. Special inserts of tungsten carbide, one of the hardest known materials, guard (1) the material nozzle and (2) the tip of the needle valve from the abrasive action of frit.

Similarly all other parts of Binks spray guns are precision built of carefully chosen, wear-resisting materials. The air nozzle is of nickel-plated bronze; the two-finger trigger is equipped with a hardened plate to stop wear. Cartridge-type air valves are easily replaceable. You have a wide choice of nozzle set-ups for each of these guns...each especially designed for ceramic finishing. A Binks engineer will gladly recommend the nozzle which will do the best job for your particular work.

The same wear-resisting features are available in the Binks Model 21V, precision automatic spray gun. A special three-way valve turns the gun on and off in automatic installations without the slightest trace of spitting or dripping.

"Binks is justly proud of its 'Big 3' production guns. They produce, at minimum cost, the high quality finishes demanded by the buying public."

J. J. Roche
Chairman of the Board

Write now for free information on these guns.

Binks MANUFACTURING COMPANY

3122-40 Carroll Ave., Chicago 12, Ill.

NEW YORK DETROIT LOS ANGELES ATLANTA BOSTON CLEVELAND DALLAS MILWAUKEE NASHVILLE PHILADELPHIA PITTSBURGH ST. LOUIS SAN FRANCISCO SEATTLE WINDSOR, ONTARIO, CANADA

→ *from Page 8*

Transit pre-testing program is contained in January, 1950, finish.

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interested in practical developments toward reduction of in-transit damage

Dear Sirs:

Please be assured that our railroad is interested in all practical developments toward reduction or elimination of damage in transit of manufactured products, as well as all other merchandise.

We will be interested in progress of projects undertaken and no doubt will be advised through the Association of American Railroads of results obtained.

C. McD. Davis, President
Atlantic Coast Line Railroad Co.
Wilmington, N. C.

---

pre-shipment tests plus scientific loading assure best in shipping protection

Dear Sir:

Adoption and use of the Safe Transit sticker *(label)* results from our investment in a vibration machine and a Conbur tester for use in more thoroughly testing refrigerators and other valuable packaged merchandise as prescribed by the National Safe Transit Committee These tests, together with careful and scientific loading of our merchandise, assure our customers of the best in handling and shipping protection.

This sticker will also indicate to our customers that Norge has continued to test each new product design and all crating design changes.

C. L. Wallace, Production Manager
Norge Division, Borg-Warner Corp.
Muskegon Heights, Michigan

---

active in "safe transit" program

Gentlemen:

Since the inception of the Safe Transit Program by the National Safe Transit Committee, we have endorsed

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THE finish LINE

1950 CAN BE A BOOM YEAR — for major appliances and other metal products for the home. With a reasonable degree of stability in the supply and prices for raw materials, in the labor market and in the retail sales prices for finished products, the total sales from major appliances and allied metal products may hit a peak for 1950 higher than for any other period.

A personal survey

We have been attending the furniture and appliance markets held in Chicago semi-annually for the past 20 years. We have talked with manufacturing exhibitors over a period of years when business has been good, bad and indifferent. We've seen years when practically all exhibitors were "crying" about poor market attendance, "no business" etc. We've viewed the mad rush following the war when all manufacturers were allocating their meagre supplies of finished products and when buyers were literally falling all over each other to get their share of the products to be made available.

From many angles, this year's Market appears to be one of the healthiest in history. A descriptive word used by many manufacturers and buyers alike is the word STABILITY. During the first week of the January furniture and appliance market in Chicago (week ending January 14) personal contacts were made with many of the leading manufacturers represented at the Market and an inquiring reporter talked with several hundred from among the vast throng of buyers in attendance. A brief review of these comments may be of interest.

What the manufacturers say

The following are only a few telegraphic excerpts from comments made by producers of major appliances and allied metal products when asked for comments based on the first week of the market.

Cribben & Sexton — "Very busy. Most substantial market since before the war. Some features of market: (1) buyers are shopping and returning, (2) dealers stocks are low, (3) buyers receptive to promotional ideas, and (4) accent is on quality — not price."

Norge — "Attendance has been better than in January, 1949, which we considered a good year. Dealers are placing more orders than usual at the market. Interest is heavy in all appliance lines, but particularly good on both gas and electric ranges."

Frigidaire — "Has been best market since the war. Have had better play than at any market except the one in which our new automatic washer was introduced."

Roper — "Best market in many years. Dealers inventories surprisingly low. Some are desperate for merchandise. Will be allocating merchandise for several months."

International Harvester — "Market more than satisfactory. Distributors have been very happy with results. Sales very satisfactory. Expect very large increase in sales for 1950 over 1949 — both on refrigerators and freezers."

Automatic Washer — "Good reception to line. No appreciable price shopping. Buying good."

Admiral — "Seven thousand buyers visited space first two days. Show exceeding all expectations."

Tappan — "Very fine market. One of the best markets we have had for both attendance and amount of business booked."

Coleman — "The best show we have had since we have been in the market — both from the standpoints of attendance and business. Unprecedented reception."

Business in the millions

The quoted comments are decidedly in contrast with those that have been picked up on similar occasions at other markets and while all manufacturers have not released specific dollar values of orders booked for 1950, it may be significant to quote *Admiral Corporation whose bookings for the first quarter of 1950 on their entire line — including ranges, refrigerators and television — total* $53,000,000.00. Published figures for *Philco Corporation show bookings in orders already placed for the current year, total* $80,000,000.00. All in all, we find the manufacturing group in a far more optimistic mood than has been true for some time.

The buyer angle

There was a good tone of optimism among the buyers approached at the market. Early registration indicated the possibility of a higher attendance during 1950 than for either 1948 or 1949. There was certainly no indication of frenzied buying. On the other hand, the tendency was to careful shopping and adequate purchases based on the prophecy of a stable market. The generalization of many of the comments received from buyers may be covered by quoting Stanley Reinherz of Maison Blanche, New Orleans. Mr. Reinherz had previous merchandising experience with Sears, Abraham & Straus and Goldblatts. He said, "The market is the best in my opinion since 1939. It has *stability* and carries a strong feeling of good business."

No "push-over" for manufacturers

The current "boom" in metal products sales by the manufacturer unquestionably can be related to three influences.

(1) Low inventories at the retail level.

(2) Anticipation of good retail business during the coming months.

(3) Fear of possible price increases.

The wise manufacturer is the one who realizes that to carry this desirable situation through the year means additional selling aids for distributors and dealers, endless sales training, and advertising and sales promotion at the retail level planned on a basis of increasing competition for the consumer's dollar.

Dana Chase

EDITOR AND PUBLISHER

Homefurnishings market bookings indicate high production for 1950

A VERY high volume of production during 1950 is the only way manufacturers will be able to meet the demands of buyers of major appliances and other homefurnishings, according to statements made by both buyers and manufacturers attending the International Homefurnishings Market held in Chicago January 9 to 20.

Buyer registration at all-time high

Buyer registration at the American Furniture Mart for the first four days of the market reached an all-time four-day high of 15,524, compared with 12,867 last year and 14,712 in the prior peak year of 1948. Total registrations for the 2-week winter market were expected to surpass by several thousand the 22,000 mark of a year ago.

Several factors were said to be responsible for the high buyer attendance. One was the introduction this year of a greater variety in design and style of homefurnishings than ever brought out before by manufacturers in the past decade. Another factor was the later opening dates which were established last year to permit the buyers to travel to Chicago after—not during—the year-end holidays.

Estimates for business during 1950 range from "good" to "double the 1949 volume." Some appliance and television estimates especially point to a banner year.

One estimate of refrigerator production for the year is 4,500,000 units at an average retail price of $270.00. This represents $1¼ billion in sales. Television producers are quoted as estimating 1950 sales at 2,500,000 units. At $200 per unit this would be $500 million in retail sales.

Refrigerators in boom period

Dan Packard, sales manager, Nash-Kelvinator Corporation, said without qualification that the refrigerator industry is in a boom period and is expected to "hit its highest daily output rate in history in February and March." He stated that present inventories were 300,000 below normal at the retail level, and 200,000 below at the manufacturers' level.

There has been no adjustment in selling price of refrigerators as yet resulting from steel price increases, said Packard. Costs will be increased, he said, but any increases reflected in component costs will be studied before final consideration for price adjustment.

Philco books $80 million of orders

Philco Corporation announced during the market that during the first few weeks of 1950, it has received 80 million dollars of orders for ranges, refrigerators, television sets and other products. James H. Carmine, executive vice president, said most of the orders are for shipment in the first quarter of 1950, with the result that increased production will be required in the refrigerator, television, and electric range divisions.

Admiral books $53 million for first quarter

Admiral Corporation has reported booking orders for refrigerators, ranges, and television sets totalling 53 million dollars for the first quarter of 1950.

Whirlpool expects to double sales

Sales of Whirlpool home laundry equipment in 1950 is expected to more than double the figures for the year just completed, reports Robert M. Mitchell, sales manager. At the

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Tom Baker, International Harvester, and John Elliott, "Living for Young Homemakers," discuss IH's initial display at homefurnishings market.

finishfoto

Jim Gallagher, left, division sales manager, Automatic Washer Co., demonstrates their new washer for Mr. and Mrs. Orlen Tollefson, of Minot, North Dakota.

same time, Mitchell announced that 1949 was a record year for the Whirlpool Division of Nineteen Hundred Corporation.

Seller's market ahead for home appliances — says Hotpoint head

The home appliance industry has a seller's market ahead of it again. James J. Nance, president of Hotpoint, Inc., stated before the annual meeting of the National Appliance and Radio Dealers Association, held January 17, at the Congress Hotel.

This situation, according to Nance, reflects the outlook for a high general business level, a more healthy inventory basis, and the loss of production due to the steel strike.

"With the inventories in the distribution system cleaned out, and

REPORT BUYING TWICE '49 RATE

BUYING RECORD GROWS AS FIRST WEEK NEARS END

Big Potential Market Open in Appliances

J. W. Walter, of Empire Appliance Company, pulls down on the lever which starts their large display "ironer" in operation.

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Mable Anderson, national demonstrator, Anderson Stove Company, is shown here with their new all-over chromium clad range.

finishfoto

with the prospect that the steel situation will be touch and go until the end of March, I don't see how the appliance industry, even going full blast, will be able to build up inventories to a comfortable level until late spring at least," said Nance.

U. S. Chamber of Commerce predicts good year for homefurnishings

American families will spend an estimated $9,900,000,000 in 1950 for homefurnishings, with refrigerators and home freezers in top demand, according to a report issued by the Chamber of Commerce of the United States.

Expenditures will range from an average of $50 for the families in the below $1000 income groups to

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S. J. Stephenson, left, range division merchandise manager, Westinghouse Electric Corp., show their new range to G. M. Halverson, of Indianapolis, Indiana.

Predicts Gain in Sales of Big Machines

Sees Seller's Market In Appliance Trade

s "office refrigerator" was displayed by General Air ditioning Corp. This four cubic foot unit has a natural brown wood grain finish.

A. B. Casey, vice president, Rainier Company, holds fresh celery taken from their "refrigerator" designed especially for fruits and vegetables.

finishfoto

$2800 expenditures for families whose income is $25,000 a year, the report added.

Showmanship in sales

In the displays of both Thor and Estate Heatrola, buyers were "stopped" with mind-reading acts.

Hotpoint, Inc. exhibited a model railroad with the company's products listed on the sides of miniature box-cars.

Westinghouse featured an electric fan in operation though submerged in a gold fish bowl.

General Electric displayed a refrigerator with the motor under a continuous stream of water and still operating.

More apartment-size appliances

A tour of the appliance display floors at both the American Furniture Mart and The Merchandise Mart revealed that more and more manufacturers were acutely aware of the part being played by the construction of small homes and apartment-type dwellings. Nearly every major manufacturer of kitchen ranges displayed an apartment-size range, with the domestic refrigerator and washing machine producers exhibiting more interest in this small-home market.

Range with versatile design

Landers, Frary & Clark added a "select-a-range" to their line of appliances. This range is comprised of three basic interchangeable, independent, self-contained units consisting of an oven, surface cooking unit, and storage cabinet. More than 25 different arrangements can be created with these three basic modular units, it was stated. Each unit is complete in itself, so that it can be installed separately, recessed in stock cabinets or custom millwork. Or the units can be fitted together with a right-hand oven, left-hand oven, or double ovens —all at the "convenience" level.

Philco Corporation, which recently entered the electric range field, introduced a nine-model line. The company's range broiler, using a "broil under glass" principle, is claimed to offer for the first time a smokeless broiling. Spattering of grease on the hot broiler is said to be eliminated.

Bendix Home Appliances, Inc. displayed a low priced automatic washer with a tub made of a special alloy which is claimed to be more resistant to abrasion than steel or aluminum.

Nineteen Hundred Corporation showed a new gas-heated clothes dryer which is ignited automatically and is equipped with several safety controls.

Frigidaire Division of General Motors Corp. exhibited a full line of appliances which were highlighted by a new 30-inch electric range equipped with what the company says is the largest oven in any electric household range.

"Refrigerator" for vegetables

Rainier Home Appliance Co. showed for the first time a refrigerator operating below the freezing point of water but above the freezing point of lettuce and other vegetables. The vegetables are held at a "dormant" stage at a temperature of 31½° F., it was stated.

General Air Conditioning Corp., which introduced its line of "cooking refrigerators" at the last mid-summer market, exhibited a new 4 cu. ft. table top "office" refrigerator finished in a natural wood grain finish.

Ideal Steel Products, Inc. featured a compact two-piece household unit consisting of a combination refrigerator and electric stove, and a folding dinette. An added feature of the refrigerator is a lock and key for the door.

The Murray Corporation of America had a "premiere showing" of their electric and gas ranges, and matched steel kitchens and plumbing fixtures.

Anderson Stove Company's display space was highlighted by a new all-over chromium clad gas range.

"Frostless" refrigerators

Admiral Corporation introduced a new refrigerator which is claimed to require "no defrosting."

The Norge Division of Borg-Warner Corp. showed their refrigerator with a "self-d-froster" system.

Westinghouse Electric Corp. displayed its new "frost-free" refrigerator which is said to automatically defrost itself before frost builds up.

Another new Westinghouse appliance unveiled at the market was a "Rancho" electric range which provides room for storage of a kitchen stool.

United States Stove Company introduced a new 18-inch apartment size range, also a room heater with V-ray elements which are claimed to provide 60 per cent greater distribution of heat.

Coolerator Company introduced a home freezer with a refrigerator compartment. The unit, known as a "Freez-r-ator," has a 15 cu. ft. freezer box and a 3 cu. ft. refrigerator compartment.

Dortch Stove Works displayed a new electric range to round out the company's line of gas, electric, coal and wood ranges and heaters.

Although not displayed at the market, Brown Stove Works, Inc. announced their new gas ranges with flush-to-the-wall construction.

A. J. Lindemann & Hoverson Co., another newcomer in the refrigerator and home freezer field, introduced a complete new line of units under the tradename of "Lectro-Host."

Ranges in color

The Star Division of Borg-Warner Corporation displayed both gas and electric ranges in color, plus gleaming white washers.

Perfection Stove Company exhibited its line of gas and oil ranges, plus a newly acquired line of electric ranges — finished with titanium porcelain acid-and-stain resistant finish.

Portable dishwashers

Cory Corporation's display featured their new "Matic Maid" portable electric dishwasher unit purchased recently from Allied Products Co. The new unit weighs 25 pounds and is designed to operate on top of the average kitchen sink.

Kay-Way Corporation introduced what they say is the first portable dishwasher to incorporate constantly changing water and sustained detergent action. Designed to operate on the sink drainboard, the unit is equipped with twin outlets for either left or right drainboards.

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Production of custom-built neon signs and architectural panels

this compact plant is designed for straight-through production

by W. A. Barrows • PRESIDENT, BARROWS PORCELAIN ENAMEL CO., CINCINNATI, OHIO

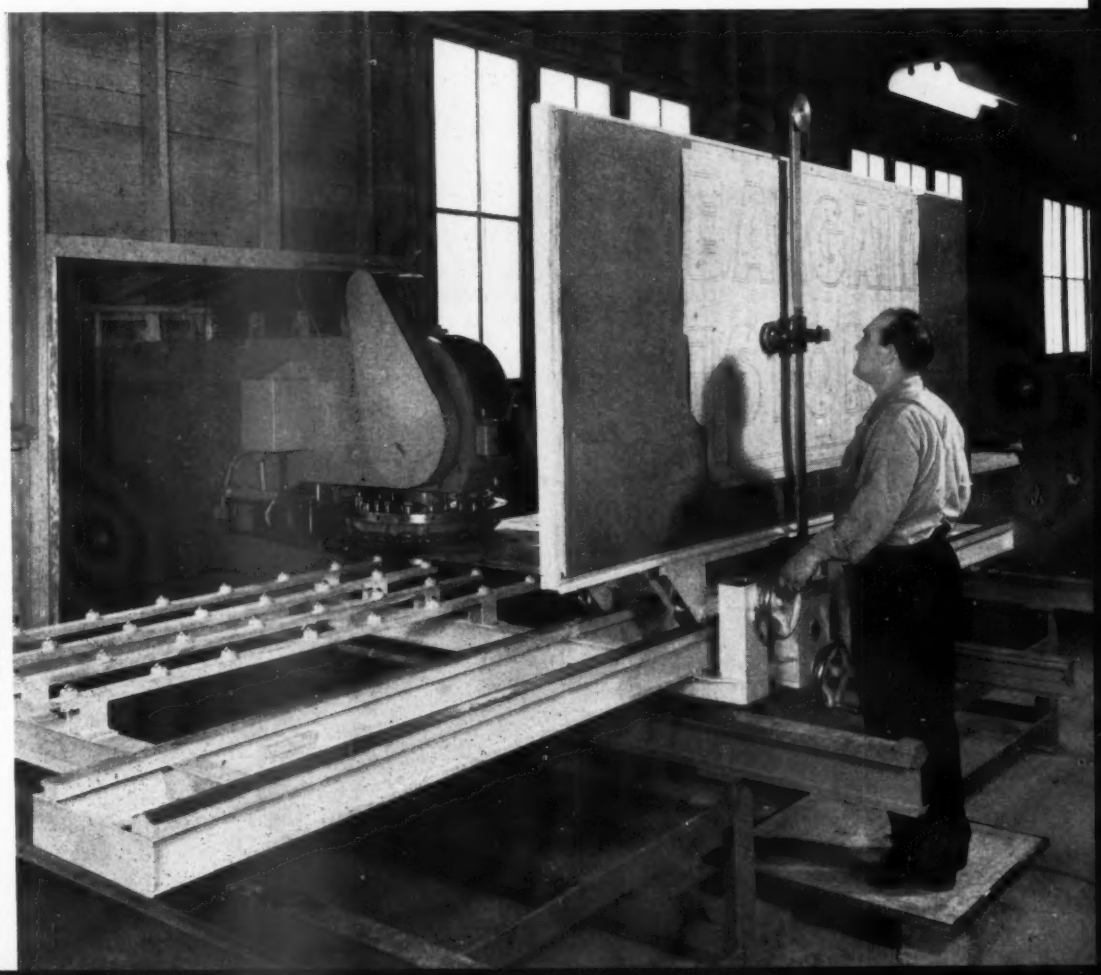
Exclusive feature finish

Our plant, located in an outlying industrial district of Cincinnati, has, over a period of years, gradually evolved to a specialized operation on custom-built neon signs and faces, architectural panels and quantity sign work. We operate a plant specializing in porcelain enamel in colors as contrasted to our old shop that produced stove parts and other white ware.

The plant consists of approximately 40,000 feet of floor space, spread through three buildings and almost entirely on one floor. Railroad sidings enter the property. The main building consists of office space and the finishing shop. A separate metal working unit, of approximately 10,000 feet was completed about three years ago and is equipped with a complete line of metal working equipment.

Sheet steel fabrication

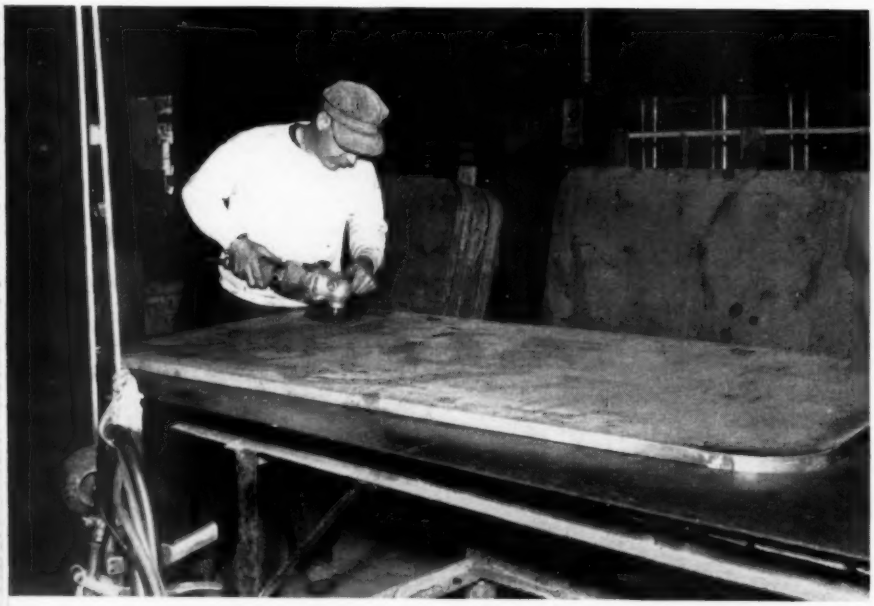
Metal work is done on 14 gauge and lighter sheets. The usual power squaring shears, press brake and welding equipment are in evidence and there are a certain number of specially built rolls and hand brakes



This turret head punch and handling table was designed specifically for punching holes for neon faces. The machine has a 50" throat for handling 48" wide sheets, and is equipped with 24 different sets of tools for punching almost every size hole from 1/8" to 2" diameter.

finishfotos

Left: Man on left is gas welding flanges to letters while man on right is arc welding flanges to faces.



finishfotos

Center: Operator is shown metal finishing a steel sign face.

Left: Spraying enamel onto channel letters. Overhead conveyor carries parts through all main operations with minimum handling.

used in forming the flanges of the channel letters that are an important part of our sign production.

The most unusual piece of equipment in the metal shop is a specially built turret head punch and handling table that was designed specifically for punching holes for neon faces. This punch has a 50″ throat for handling 48″ wide sheets and is equipped with 24 different sets of tools for punching almost every size of hole—from ⅛″ to 2″ diameter. The punch table is designed to float a sheet around under the tools so that any hole can be punched in any location in a 48″ x 120″ sheet. The pattern used for making these layouts is mounted on a board in front of the machine and the operator simply moves a pointer to the correct location on the pattern and punches a corresponding hole in the sheet. The operator can not even see the metal that he is punching. All work is done directly from the patterns and no layouts are necessary. An automatic counter shows the operator the number of holes that have been punched of any one size.

Formed letter fabrication

In the production of formed letters, the faces and flanges are contour cut and formed, and then spot welded together. The letters have been successfully used for over 10 years. The arc welding produces a letter without distorting the metal because the welding heat is less than that generally needed in gas welding.

Through the flange face construction, the arc welding is held within the rear of the letter where the arc welding can be done without inter-

Right: Operator presses button to start power-driven monorail conveyor through dryer.

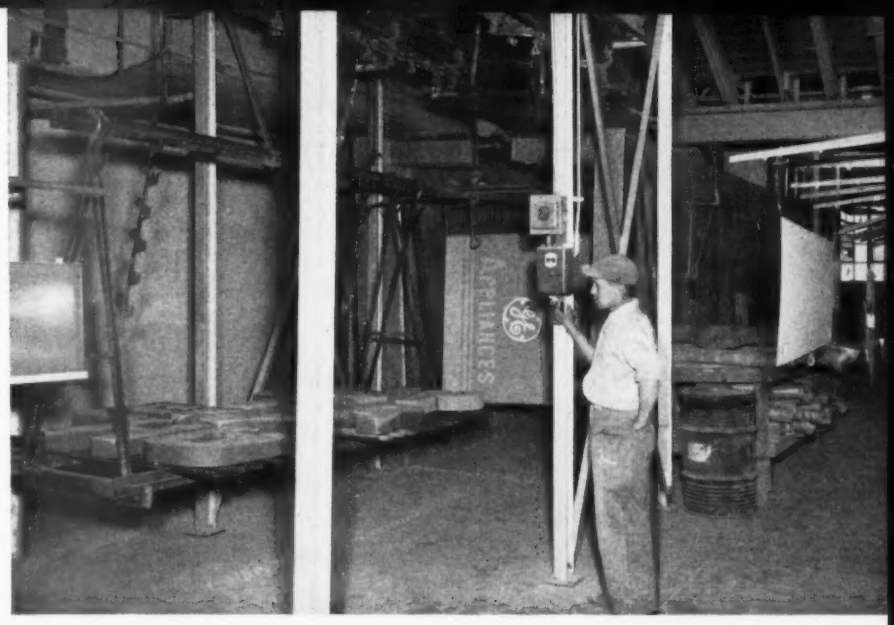
fering with the quality of the enameling job. 14 gauge metal is used on the faces of the letters and 18 gauge is used on the side flanges.

Pickling tanks are set up in accordance with standard practice. Two cleaners are used. Instead of hot sulphuric acid, acid in the form of salts is used. The material is two to three times as expensive as ordinary hot sulphuric acid but is so much cleaner and more convenient that the extra expense is considered worth while. The acid tank is lead lined and heated with a carbon plate heat exchanger that is proving entirely satisfactory and should give a considerably longer life with less trouble than usual lead coil. The tanks are 4½′ deep x 3′ wide x 10½′ long.

Enameling procedure

Because of the large variety of colors used in production work, seven spray booths are available for the application of both ground and cover coats. The walls of these booths are made from porcelain enamel steel to facilitate cleaning. No attempt is made to reclaim enamels; again because of the many colors used. Pressure tanks are not used because of the large number of colors and the amount of changing from one color to another that is done in these booths. Gravity buckets are used and anywhere from 4 to as many as 10 buckets will be suspended at one single booth at a time. A good share of the colors now used are acid resisting enamel that are uneffected by industrial vapors or weathering.

Practically all ground coat is sprayed; due to the size and shape



finishfotos

finishfotos

Center: Two men are shown applying color to a sign by screen process method. Sign in background has been hung on conveyor and is ready for firing.

Right: Photo shows one of two box type furnaces used for firing ware.

finishfoto

Left: Shown are typical neon sign letters made by the Barrows Porcelain Enamel Company.

of the pieces generally run. The sprayed work is hung at the spray booth directly on to the burning tool. These burning tools are conveyed through the shop and also through the dryer by a monorail overhead handling system. The loads are pushed through the dryer with a power-operated pusher but through the rest of the plant are moved either by gravity or by hand.

The dryer is 40-foot long and uses a high velocity movement of 160 to 170° steam heated air. Forced air "curtains" on both ends of the dryer prevent excessive heat loss.

From the dryer the conveyor continues by gravity to a switching station where the ware may be routed to either (1) the furnaces for firing of the ground and cover coats, (2) the screen process area, or (3) to one of the numerous brushing tables.

Ware fired in box furnaces

The two box furnaces, used for firing both ground and cover coats, are of the slotted roof construction. No loading forks are used. The loads are run in over-head on monorail conveyor and drop rods suspend the load in the furnace during the firing operation. The doors of the furnaces drop into slots in the floor. Portable optical pyrometers are part of the furnace equipment. The furnaces are separated from adjacent working areas by corrugated aluminum sheets hanging from the ceiling and used to baffle the furnace heat.

After firing, the ware travels on the same fixtures through cooling and inspection; back to spray booths for subsequent operations. On the final operation, the work is routed into the shipping department on the same burning tools that it was originally hung on to start the enameling operation.

Undoubtedly, the most unusual feature of the entire enameling operation would be the method of handling the work through the shop. As previously stated, the work is hung on the burning fixtures at the spray area and then is kept on the move on the same fixtures through every operation until it is completed and taken from the fixtures in the shipping department. Several of the normal handling operations are thus eliminated and those remaining are made extremely easy. Very seldom does a piece of work ever hesitate in its progress through the shop or end up in storage on the floor or on trucks before it is completed. Such a system entails a somewhat heavy expenditure for alloy burning fixtures and overhead track, but the investment has been fully justified.

Improvement in quality

In addition to the savings in handling of work, a very decided improvement in quality has been experienced through the elimination of damage in handling and transferring that used to be normal.

Right: Design engineering department men layout and cut stencils which are used on many jobs where screen process is not applicable.

The evolution of deep drawing lubricants

a brief history of early development work—a description of compounds now in use with advantages and disadvantages of each

by G. A. Cairns • THE MACCO PRODUCTS CO., CHICAGO, ILL.

NO way has as yet been found to accurately evaluate, in the laboratory, the exact performance of a drawing compound, under actual production conditions. There has been, however, a tremendous amount of research on this subject, a great deal of which is independent research and a great deal of which is parallel to and a part of the general science of lubrication.

Original lubricants

The original lubricants were fatty substances, usually obtained more or less locally, such as fish oils on the sea coast and fat rendered from domestic animals in the farming areas.

The first research on the advantage of using fats in conjunction with mineral oils was conducted by Hardy, Wells and Southcombe in 1920. They established the fact that superior lubrication was achieved by the addition of fatty acids to mineral oil.

Later work by Langmuir, partially conceived by Hardy, showed that the molecules, which probably were fatty acids, oriented so that the hydrocarbon chains stood out above the surface. Wells and Southcombe secured a patent on this process and wrote articles claiming of its discovery. In these articles they stated that the addition of fatty acids to a mineral oil reduced the static coefficient of friction and increased the oiliness. Another claim was that the addition of fatty acids caused better spreading and penetrating properties, due to the lowering of interfacial tension. This research presumed that the fatty acids used some valence forces that were present on the surface of the metal and that the mineral oil was a separate layer above the metallic compound which was so formed.

Southcombe went into more detail on this matter in 1926 and states in

G. A. CAIRNS

his book "Chemistry of the Oil Industry" as follows:

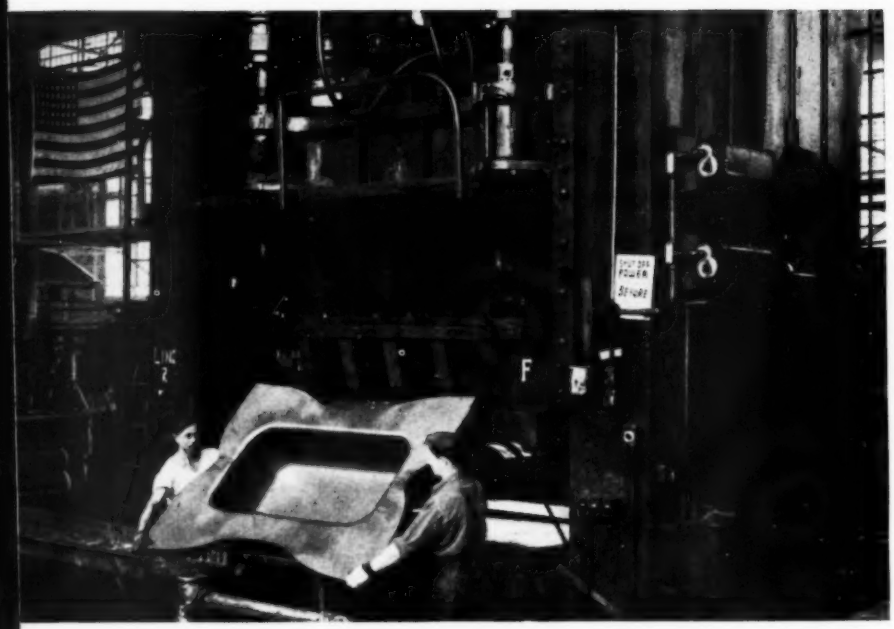
"It has been the experience of most engineers that the animal and vegetable oils are superior in lubricating properties to the mineral oils for certain purposes, notably under conditions of low speed and heavy pressure. . .

"It usually is found that comparatively thin oils, like rape and sperm, give better results in these circumstances than mineral oil of relatively high viscosity. The term "oiliness" was coined to express this peculiarity and vegetable and animal oils are said to be more oily than mineral oil."

It should be noted that the preceding reference, to low speed and heavy pressure, describes the usual metal drawing operation.

The first exhaustive study was made by Trillot and published in 1928, when he made a study of the X-ray diffraction pattern of thin films of fatty acids. He concluded that the molecules oriented with links perpendicular to the surface and carboxyls being adjacent in successive pairs of layers which serve as diffracting planes. He explained this in terms of lubrication by comparing these layers to a deck of playing cards which slip over one another very easily on a horizontal plane, but are extremely resistant to perpendicular pressure or shock.

At this time there was a school of thought which attempted to prove that fats in themselves were better lubricants than mineral oil. Inasmuch as the easiest way of supplying a thin film af fat was in a soapy form, some work was done by A. S. C. Lawrence and published in 1930. It appears that he believed there was a cohesion between the molecules of soap from the film he had observed in blowing soap bubbles. He was under the impression that a soap film was a colloid, and did some work to show that the collodidal properties of soap solution result from the peculiarity of the form of molecules of soap. However, his research showed that the film built up on top of the soap solution was very rich in pure fatty acid and only contained sufficient OH ions to neutralize three-fifths of it. His conclusion was that while all soaps happen to be colloids, only a few colloids are soaps, and that a soap film is not a colloidal film. →



Left: The importance of using the correct lubricant in a deep drawing job such as this cannot be overlooked.

The last and most authoritative research on this subject, with which the writer is familiar, was done at the University of Illinois by George L. Clark, Robert R. Sterrett and Bert H. Lincoln, of Continental Oil Corporation. They evidently had gone very thoroughly over the work done by Wells and Southcombe and had concluded that one of the following premises was true:

(a) The polar ends of the fatty acid molecule tend to interact with the secondary valence forces of the metal surface, thereby preventing metal cohesion.

(b) These molecules produce a layer on the surface which by its structure facilitates the longitudinal slippage and is very resistant to rupture by a perpendicular force.

They carried this research on into the realm of chlorinated and other extreme pressure additives, which are not satisfactory for use in the porcelain enameling industry, due to the difficulty of cleaning, and, therefore, we will not pursue this work further. However, the foregoing is the basis of the research culminating in the development of our present day compounds.

We will avoid mentioning any compound which is not suitable for the enameling industry, referring particularly to pigmented drawing compounds. While a few enameling shops still use them, they are a source of difficulty in cleaning. Most of the pigments used are readily soluble in acids, but salt out in the acid bath. When these salts build up sufficiently, difficulties are encountered, which may cause rejected ware. Also, these hard metallic pigments have a tendency to press into the surface of the metal, so that they are not removed in the pickle line.

Basic qualities of good drawing compounds

In our discussion of the various types of compounds, we are going to assume that they possess the basic qualities which are inherent in all good drawing lubricants. All compounds should possess the ability to form a stable emulsion in all types of water, a stability of the product itself during shipment and storage, and resistance against rancidity or decomposition. From the point of view of the workman, there should be no toxic effect or obnoxious odor. A good drawing compound should also act as a rust preventive during storage prior to cleaning.

The first lubricants widely used by the porcelain enameling industry were soaps (completely saponified soaps) usually made from soybean oil, corn oil or fatty acids, and purchased in jelly form. Some manufacturers of compounds realized, after the work of A. S. C. Lawrence, that emulsions which contained excess fat or excess fatty acids undoubtedly would give better drawing results, and the first emulsions manufactured were somewhat similar to a soluble oil, usually in a paste form, containing an excess amount of fatty material. Also, the use of mineral oils, in these emulsions, reduced the cost, due to the fact that mineral oils are normally lower priced than fatty oils, and not so subject to market variations. These, however, were not the answer for the porcelain enameling industry, due to the necessity for absolute cleanliness, on the finished ware, prior to application of the ground coat.

There were then developed emulsions which were entirely fatty. In these emulsions, low titer fatty oils were substituted for the mineral oils, which formerly had been used. This gave an emulsion which was practically 100% saponifiable and easily removed in the subsequent alkaline cleaning bath.

Adhesion and cohesion of lubricant film

The manufacturer of drawing compounds must take into consideration the adhesion of the film of lubricant to the metal and the cohesion of the film, so as to prevent metal to metal contact between the die and the piece being drawn, in order to avoid the difficulties due to breakage and die pick-up. For many years, a few manufacturers were using a dried borated soap film. This dried film showed remarkable adhesion to the metal, and recently has become quite popular in the enameling industry, for certain types of draws. Another type of compound, recently developed, is the so-called plastic compound. These compounds are blends of plasticized resins, with various additives.

Use of soaps or saponified fats

In the balance of this paper, we

will deal with the advantages and disadvantages of the various soaps or completely saponified fats for drawing. The advantages are as follows:

(1) They are almost "fool proof" as far as cleaning is concerned.

(2) It is possible to weld through these soap films, without prior cleaning.

(3) They are cheap and readily available.

The disadvantage to the use of straight soap is that there are many drawing operations where the soap does not furnish sufficient lubrication, with consequent increase in cost due to scrap, machine shut-down for die stoning, etc.

Soluble oils

Soluble oils are still used in some instances, and emulsions containing mineral oil. There has been considerable controversy as to the difficulty in removing mineral oil from metal prior to enameling. Although many plants are doing it successfully, it is not considered the best production practice, because these oils are not saponifiable and are not reacted upon by the alkaline cleaning bath. Therefore, it is necessary to emulsify them in the cleaning operation, with the consequent contamination, and the ever present possibility that this oil will be carried through on the ware.

Emulsion type of compounds

The fatty emulsions are widely used for several reasons:

(1) They are easily removed, because they are almost 100% saponifiable.

(2) They lend themselves to a wide variety of applications, as they may be swabbed on the blank, brushed on, or the blank may be dipped in a thin emulsion of these compounds.

(3) There is usually no capital investment necessary for the application of this type of compound.

(4) They are flexible, due to the fact they may be used in any concentration desired, so that the coefficient of friction may be varied, depending upon the operation.

(5) These compounds may be "spot compounded", that is, applied only in spots where it is desired to control the coefficient of friction.

The disadvantages to the emulsion type compounds are:

(1) Because the emulsions are liquids, they tend to create an untidy area around the punch press, due to splashing and dipping.

(2) Although careful scientific research has gone into the adhesion of these compounds to metal surfaces, they do have more of a tendency to wipe off over the draw ring than the so-called plasticized or dried soap coatings.

Plasticized compounds

There has been a great deal of work done on plasticized compounds, and they appear to have a very definite place in the enameling industry, possessing the following advantages:

(1) They do have excellent adhesion to metal surfaces, and consequently will not wipe off over the draw ring, under very extreme pressures. They do reduce scrap on many operations.

(2) Due to the cohesiveness of the plastics, they do not drip or splash.

(3) On light draws they may be diluted with water or light mineral oil.

There is some question about the labor cost of application. These compounds must be applied either by steel rollers, or by spraying, through a specialized type of spray gun. On certain operations, where it is necessary to have a man at the press doing nothing but applying the compound, the labor cost undoubtedly is about the same as on emulsions. However, in some cases where the operator, using soap or emulsion type compounds, can lift the blanks out of a trough or a vat and also operate the press, the labor costs for plastics are higher.

The disadvantages to plastic compounds are:

(1) The blank must be cleaned prior to welding, as it is impossible to secure a good weld through these films.

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Right: Equipment for automatic spray lubrication is shown in this photo.

Silicones in the protective coating industry

a glance into the future of finishing materials as they may be affected by silicones

by John J. Tyner • MANAGER, WESTERN OFFICE, DOW CORNING CORP., LOS ANGELES, CALIF.

SILICONES are a unique class of polymers based on a molecular skeleton of alternate silicon and oxygen atoms. This remarkably heat-stable silicon to oxygen structure is modified by various carbon groups which are attached to each silicon atom. The properties of the silicones, like all polymers, are determined by the basic molecular structure and by the different chemical groups attached to that structure. The heat resistance of a silicone polymer depends therefore upon the kind of carbon groups attached to the silicon atom as well as the stability of the basic silicon-oxygen linkage.

The various silicone materials might be said to occupy a middle ground. They have properties common to both organic and inorganic materials, yet they belong to neither class. Silicones are like organic liquids, resins or rubbers in appearance and workability, but they have enough of the stability that is characteristic of inorganic materials to set them up as a class apart from organic substances in many important respects.

Use of fluids

In general, the finishing industry is most interested in silicone resins that can be pigmented to make heat and corrosion resistant coatings. There are other groups of silicone products, however, which have yielded some interesting experiences in the industry.

For example, one of the silicone fluids manufactured by Dow Corning Corporation is used to prevent silking and flooding in many different types of coatings. The quantities required for most applications are small, as low as 1 part in 50,000, but there are reports that quantities as high as 1 part in 200 have been used. Some

JOHN J. TYNER

finishes are said to become more damage-resistant or mar-proof when this silicone fluid is used as an anti-silking or anti-flooding agent. On the other hand, excessive amounts of the fluid may cause recoating troubles due to non-wetting of the paint surface. Like all new things of this nature, the use of silicone fluids must be preceded by careful laboratory tests.

Antifoam

Although the silicone fluids are used to prevent the foaming of lubricating oils, they are ineffective under many conditions, especially in the presence of water. Therefore, a special silicone compound has been developed which has proved to be a most effective defoaming agent for both aqueous and non-aqueous system.

This compound was an accidental development. An off batch of silicone plug valve lubricant was shipped to a manufacturer of rubber latex. Later when the material was put into use, the manufacturer found that a small amount of the lubricant entered the rubber latex from the plug valve and prevented foaming of the latex during an evaporating process. This manufacturer's report started product development men off on a two-year chase, but at the end they were able to reproduce the antifoaming lubricant.

A Swedish representative recently stated that Antifoam is sold to thirty-four different industries in that country. It is used even more widely in the United States with more than one-fourth of last year's production going to the paint industry.

As in the case of the silicone fluids, users in the finishing industry report that Antifoam is effective in widely varying amounts. Some use 1 part per 1,000, while others use 1 part per 2,000,000. It is used to prevent foaming in the processing of resins and varnishes. It is also used to prevent the foaming of roller enamels, printing inks and many other kinds of finishes. Several production engineers report that it also serves as an anti-flooding and anti-silking agent.

The use of these products in minute amounts to accomplish some rather astonishing results indicates that silicones are unlike the ordinary resins and oils familiar to the finishing industry. They are things apart; they are in a class by themselves; they tend to make materials they come

ILLUSTRATIONS COURTESY DOW CORNING CORPORATION

The badly rusted exhaust muffler at right was painted with conventional aluminum paint the same day that muffler at left was coated with aluminum pigmented silicone paint. Both were exposed to weathering, chemical fumes and surface temperatures of about 500° F. for 18 months.

in contact with behave differently. That is a characteristic of all silicones. It is most apparent in the silicone fluids and the antifoam compound.

Resins

Silicone resins exhibit much more resistance to heat than do their organic counterparts. That does not mean that any resin called a silicone is heat-resistant by virtue of having a silicone-oxygen structure. Heat resistance of the order required on hot stacks and the like is obtainable only if the organic part of the silicone resin is itself inherently heat-resistant. *If the organic part is not heat-resistant, the silicone resin will not be heat-resistant.*

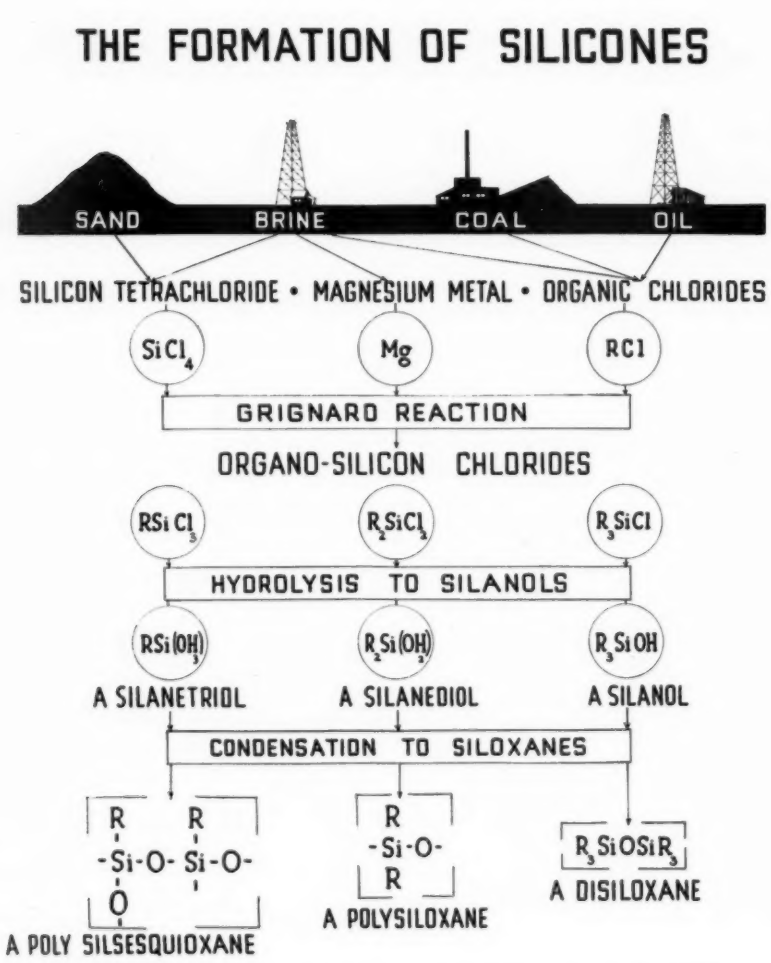
The primary purpose for which Dow Corning was organized in February, 1943, was to produce heat-resistant resins for use with Fiberglas cloth in the insulation of electrical machines. Most technical people in the finishing industry are probably familiar with these silicone resins. They are the result of intensive studies in the electrical field and they are of some importance in formulating heat, moisture and corrosion-resistant finishes.

Moisture and weather resistance

Silicone resins are unusually water repellent. Moisture absorption is in the order of 0.2% after 168 hours of immersion in water. The combination of water repellency and low moisture absorption contributes to the water proofness of the silicone finishes and gives added protection against the rusting of metals.

Chemical resistance

In general, silicone resin films have good chemical resistance. Testing shows they are resistant to dilute and concentrated acids, alkalies, salts and oils. Their resistance to solvents is generally poor. Unpigmented silicone resins are more resistant to solvent attack than those which are pigmented. For that reason it is important to select pigments with good chemical resistance when the finish is to be used in contact with chem-



icals. Longer periods of baking will also increase chemical resistance.

Other characteristics of silicone resins

Silicone resins possess another property which is desirable in many types of finishes. That is, carbon, soot, and other foreign materials do not readily adhere to a silicone painted surface. Silicone painted stacks in industrial plants actually tend to stay cleaner longer than stacks painted with organic paint.

These silicone resins have a limited compatability with most organic resins. They are, however, compatible with pure phenolics, coumarone-indene and, to a limited extent, with alkyd, urea and melamine resins.

Formulation of silicone finishes

In the preparation of silicone paints and enamels for industrial use, it has been found that a blend of about 60% of one of the harder resins and 40% of one of the softer resins is a good basic formula. This composition will air dry to produce a tack-free film which does not pick up dust or dirt prior to curing at operating temperatures.

Pigments

Special care should be taken in selecting pigments for use with silicone resins. Many pigments have poor thermal stability. Other pigments, particularly those containing lead and chromium, cause the resins to gel during storage. There are, however, enough heat-stable pigments available to produce silicone enamels in a wide variety of colors for use at temperatures up to 500°F.

Titanium dioxide, antimony oxide, zinc oxide, lithopone and several other pigments are satisfactory for formulating silicone enamels. It should be noted, however, that some of the metal oxides frequently blended with titanium dioxide may reduce the shelf life of the silicone enamel.

The usual carbon pigments are satisfactory for formulating most black finishes. Experience shows, however, that the carbon has a tendency to be lost to the surface of the enamel at temperatures above 480°F. Blues or greens can be made from copper salts. Both pigments are largely organic but in the silicone resins they are stable up to 500°F.

Reds may be obtained with a calcium selenide and cadmium sulfide combination. Yellows can be made with straight cadmium sulfide. Industrial coating work is most satisfactory with aluminum powder, but zinc dust may be used.

Catalysts and driers

Some of the metallic driers that are commonly used with organic resins may also be used to accelerate the curing of silicone resins. In silicones the driers are believed to enter directly into the silicone structure by promoting cross-linking between adjacent molecules. Among several satisfactory catalysts are the naphthenates or octoates of iron, cobalt, copper, manganese and zinc. Similar compounds of calcium and lead will accelerate the cure, but the resin solutions show poor shelf life and may gel when these catalysts are used.

A satisfactory catalyst for general purpose white or colored silicone enamels consists of 0.01% iron and 0.1% zinc taken as the ratio between the weight of the metal in the drier and the resin solids. This small quantity of iron will appreciably improve top hardness. Larger quantities of iron normally lower the high temperature stability of the resin and tend to discolor light tints on heat aging.

Curing schedules for silicone finishes

The curing schedule for a silicone enamel varies for each formulation. Concentration of each resin type, the amount and kind of catalyst and the

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Annual meeting of home laundry manufacturers

Paul Nelligan elected to head AHLMA for second term

H. PAUL NELLIGAN, president, Easy Washing Machine Corporation, Syracuse, N. Y. was elected president of the American Home Laundry Manufacturers' Association for a second term at its annual convention, January 12, in Chicago.

The reelected president announced the election of four new member companies—two regular and two associate. The two new regular members are Thor, Inc., Chicago, and Westinghouse Electric Corporation, Mansfield, Ohio. The two new associate members are Sperry Rubber & Plastics Company, Brookville, Indiana, and Detergents, Inc., Columbus, Ohio.

With the election of Thor and Westinghouse, the Association now represents virtually 100% of the production of household washers, dryers, and ironers.

To produce laundry manual

The Association approved plans for publication late in 1950 of a manual on the industry's products and their use and voted an appropriation of more than $70,000 to cover preparation and distribution costs.

Nelligan revealed an optimistic outlook toward 1950 in an address to the membership preceding his reelection.

"There will be more public spending and more G.I. money in circulation and the labor situation should be better, with the possible exception of that in the coal industry", he said. "Inventories are in balance, and the prices of our products have become stabilized with the possibility, however, that the prices of low-end items may have to be increased".

Nelligan predicted that 1950 would be a year of "product preference" buying. →

Left: H. Paul Nelligan (left), AHLMA president, welcomes two new regular members, John R. Hurley (center), of Thor, and R. J. Sargent, of Westinghouse.

Below: A. H. Noelke (right), AHLMA secretary, presents deluxe camera to Roy Bradt, past president of AHLMA.

D. R. Byerly, Proctor & Gamble; John B. Dyer, Easy Washing Machine; James E. Britt, Mullins Mfg.; Frank Breckenridge, Automatic Washer.

R. E. Eaton, Rupert Diecasting; G. I. Cockerill, Apex Elec.; H. E. Shepard & M. J. Mitchell, Appliance Engineering; W. B. Beuscher, Rupert.

Leo Guthman, Bradley & Vrooman; Cal Roll & Joe Groshans, Speed Queen; E. L. Farquharson, Landers, Frary & Clark; F. F. Witter, New Monarch.

V. E. Dunn, Appliance Mfg.; W. L. Hunt, Dexter; Joe O'Roark and L. H. Miller, Liquid Plastics Div., Ferro Enamel; K. J. Crider, Appliance Mfg.

"Consumers this year will have more money for goods and service than they did a year ago", he declared. "It will be a consumers' market, with women comparing items of home equipment against each other, and then shopping for values within lines of products".

Indicating the size of the selling opportunity awaiting the Association members, Nelligan pointed out that 50% of the home washers in use today are eight years old, or more.

Urging intensification of sales efforts by the manufacturers Mr. Nelligan said that "the producer who can convince the consumer she should buy his product "fustest' will get the 'mostest' of her money. We should meet the challenge and get out and sell and sell like hell."

A. H. Noelke, executive secretary, urged recognition of a competitive situation. He said, "Competition is many things *besides* price. We should know more about our products and more about our competition. Sales and advertising effort should be stepped up".

Paul N. Berner, Norge Division, Borg-Warner, reporting for the conventional washer makers in the Association, declared a prime need to be better merchandising, and that retailers are "far short" of the sales people required, both in number and quality. He urged live demonstrations in stores and homes. He said, "Selling door-to-door is the next step. We need outside selling experience. With better selling, 1949 could have equalled 1948 in sales".

Parker H. Ericksen, Bendix Home Appliances, Inc., speaking for the makers of automatics, endorsed the Association's water study being conducted by the National Sanitation Foundation, Ann Arbor, Mich., and expressed the hope that the findings would aid in bringing about a stand-

ard plumbing code for the installation of automatic washers.

Joseph Groshans, Speed Queen Corp., Algonquin, Illinois, reported that ironer sales in 1949 showed a drop from 1948 for three reasons: "a general leveling off of inventories at distributor and dealer levels, out-of-balance demand for white goods and retailers' failure to realize that consumer interest in ironers exceeded the dealers' enterprise in making some intensive effort to close sales." He pointed to a test campaign in Decatur, Ill., which produced more ironer sales

S AHLMA MEMBERS

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in two weeks than in the preceding three months. The test proved that free home demonstrations are the answer to the problem of making greater ironer sales.

The ironer sales outlook is more promising today than at any time in the past forty-five years, Groshans said. He stated that many home laundry equipment dealers realize the possibility of ironer sales at the ratio of 1 to every 2 washers, instead of the traditional 1 to 10.

Figures displayed by Mr. Groshans showed that the industry sold 131,600 ironers, 1905 to 1919 inclusive; 632,000 from then through 1929; 1,156,689 in the next decade, and 2,056,545 in the last ten years, despite virtually no production in the four war years.

F. M. Mitchell, Frigidaire Division of General Motors, reporting for the Association's makers of dryers, predicted sharply upturned sales in 1950 and said that the steadily increasing popularity of planned laundries and full mechanization of the whole home laundering sequence naturally are resulting to the advantage of the dryer industry.

Mitchell pointed out that there are now eleven brand names of dryers on the market. Sales of dryers increased 20% in 1949 over 1948 with over 100,000 units sold last year. He ex-

J. D. Delanty, Bliss & Laughlin; Willard S. Johannsen, Electrical Dealer; Bill Alkire and Hal Biddle, Ironrite Ironer; R. H. Thompson, Maytag.

Doc Boone, Mullins Manufacturing; E. C. Buchannan, Apex Electrical; P. P. Glassey, W. H. Reeve and G. W. Burns, of Easy Washing Machine.

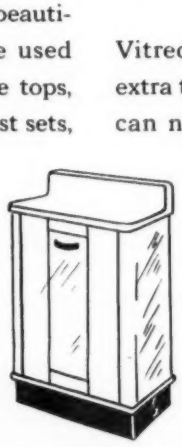
Dave Hays, AHLMA consultant, John Wicht and Oscar A. Lenna, Blackstone; Dick Sargent, Westinghouse; and A. C. Scott, Apex Electrical.

View of the speaker's table during annual meeting of American Home Laundry Manufacturers Association held in the Mural Room of Morrison Hotel.

HEAT TEST* ...HOME STYLE

** Professor Twiddle is not wasting his time. He knows that all he needs to test the heat resistance of an appliance top is an ordinary electric iron or hot skillet.*

PORCELAIN ENAMEL, as countless manufacturers know, is the *only* beautiful, colorful material that can be used without injury from heat for table tops, kitchen tables and cabinets, breakfast sets, ironers, clothes dryers and cabinet hot water heaters. A woman invariably conducts her own heat test by unconsciously resting her iron on a cabinet or appliance top. Only Porcelain Enamel will withstand this test and retain its gleaming beauty through the years.



Plan for the lifetime finish!

* * *

Vitreous Steel Products Co. has added extra tooling to existing die equipment and can now provide most common sizes to conform to Kitchen Cabinet Institute standards in one piece tops with integral back splashers. This means that it is unnecessary for you to make a large expenditure on dies to provide an attractive, clean, harmonious cabinet or appliance top.

VITREOUS STEEL PRODUCTS CO.

BOX 1791, CLEVELAND 5, OHIO *(Factory at Nappanee, Ind.)*

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John Drake, left, and Paul N. Berner, center, both of Norge Division of Borg-Warner Corp., are shown with Bill Shaw, AHLMA publicity mgr.

pects a volume in 1950 representing at least a 50% increase over 1949.

J. A. Drake, Norge Division, Borg-Warner Corporation, director of market research, reported that more companies were sending complete information for cooperative market data percentage-wise than for any other major association in the appliance field. He stressed the heavy turn-over of retail dealers last year, numbering 17,000, but explained that many of these represented name changes only.

Frank Breckenridge, Automatic Washer Company, Newton, Iowa, reported for his engineering and research committee, suggested the possibility of a centralized testing center for detergents to be sponsored by the association.

"Ultra-sonic" washing as mentioned by him at the July meeting was referred to with the report that a "small" ultra-sonic washer has appeared on the market in Australia and that one "so-called" washer of this type has appeared on the west coast.

William Shaw, in charge of public relations for AHLMA, introduced Miss Eloise Davison, director of the Association's Fourth Home Laundry Conference, and a number of representatives from leading women's magazines who took part in the conference. (Conference reported in this issue.)

R. H. Thompson, Maytag Company, Newton, Iowa, chairman of the Association's traffic committee, explained the objectives and outlined the benefits of the National Safe Transit Program for reducing packaging and shipping losses on packaged home laundry products. A number of the major product manufacturers are using the Safe Transit Pre-Testing Program, and Thompson suggested that as soon as these companies qualify for the use of the Safe Transit label that they start using it promptly for its benefit during shipment and with sales outlets.

One surprise highlight was the showing of a color movie produced and distributed by a group representing the home laundry's chief competition — the American Institute of Laundering. Although there were many laughs from the audience during the showing of the movie, it is highly possible that had the lights been on a little "squirming" would also have been visible as the color film developed the many "advantages" of using public laundries instead of home laundry equipment.

Another highlight of the day was the presentation to Roy A. Bradt, vice-president, of a fine camera outfit and a citation honoring him for his services. In the presentation by A. H. Noelke, secretary, on behalf of the members, he pointed out that Bradt was responsible for the Association's present form of organization, in which each of the industry's products is represented by a group committee.

AHLMA Executive Group

President: H. Paul Nelligan, president, Easy Washing Machine Corp., Syracuse, N. Y.

Vice Presidents: F. M. Mitchell, Frigidaire Division, General Motors Corp., Dayton, Ohio; Walter D. Hunt, chairman of the board, Dexter Company, Fairfield, Iowa; Elisha Gray, president, Nineteen Hundred Corporation, St. Joseph, Michigan.

Treasurer: Howell G. Evans, Hamilton Manufacturing Co., Two Rivers, Wisconsin.

Executive Committee: Consists of the first two listed in each of the following Product Division Committees:

Conventional Washers: Walter K. Voss, Voss Brothers Mfg. Co., Davenport, Iowa, chairman; Frank Breckenridge, Automatic Washer Co., Newton, Iowa; John R. Hurley, Thor, Inc., Chicago.

Automatic Washers: Parker H. Ericksen, Bendix Home Appliances, Inc., South Bend, Ind., chairman; C. E. Anderson, General Electric Co., Bridgeport, Conn.; R. J. Sargent, Westinghouse Electric Corp., Mansfield, Ohio.

Dryers: R. G. Halverson, Hamilton Mfg. Co., Two Rivers, Wis., chairman; F. M. Mitchell, Frigidaire, Dayton; Robert C. Upton, Nineteen Hundred Corp., St. Joseph, Michigan.

Ironers: Joseph Groshans, Speed Queen Corp., Algonquin, Ill., chairman; Hal I. Biddle, Ironrite Ironer Co., Mt. Clemens, Mich.; M. A. Toussaint, Conlon-Moore Corporation, Chicago.

Better start doing this to part of your money

YOU KNOW how money is!

Today it's in your hand, and the next day it *isn't!*

A lot of people, however, have found an excellent way to make certain they will have money when they need it most.

They *salt* away part of their pay each week in U. S. Savings Bonds through the Payroll Savings Plan where they work.

They know that saving this way assures them of the money for a down payment on a new home . . . a new car . . . or retirement when the time comes.

Furthermore, in ten years they get back $4 for every $3 invested in U. S. Savings Bonds.

Why don't *YOU* start saving money *regularly* and *automatically* where you work, or at your bank through the Bond-A-Month Plan?

Automatic saving is <u>sure</u> saving— U.S. Savings Bonds

Contributed by this magazine in co-operation with the Magazine Publishers of America as a public service.

Fourth national home laundry conference

NATIONALLY known home economists and other experts from the fields of industry, government, women's publications and education, joined in a two day series of discussions in Chicago beginning January 10. The discussions covered household washing techniques in all of its divisions. Attendance exceeded 200 persons at this Fourth National Home Laundry Conference held under the auspices at the American Home Laundry Manufacturers' and immediately preceding the annual meeting of the manufacturers' group.

Women's magazine editors conduct conference panels

Miss Eloise Davison, AHLMA home laundry consultant, was general director of the Conference. She is widely known for her home economics service in the education, government, and publishing fields. Women's magazine editors, who conducted conference discussion panels, represented a combined circulation of between 20 and 21 million readers according to Miss Davison. Program divisions were assigned to washers, both automatic and conventional, dryers, ironers, fabrics and finishes and home laundry suppliers. These discussions were conducted by the editors of national women's magazines.

Others participating in the conference leadership included Edgar L. Schlesinger, director of product development, United Merchants and Manufacturers, New York City; Dr. Elaine Knowles Weaver, Ohio State University, Columbus; Dr. Florence Ehrenkranz, Iowa State A. & M. College, Ames; Mrs. Helen Hounchell Von Huben, Household Finance Corporation, and Mrs. Madeline Mehlig, Commonwealth Edison Company, Chicago, and Miss Margaret Furry, United States Department of Agriculture, Washington, D. C.

Helen W. Kendall, Good Housekeeping, was chairman of the panel for discussion of Washers.

MISS ELOISE DAVISON

Betty Genger, Woman's Home Companion, was chairman of the Fabrics and Finishes panel.

Ada Bessie Swann, Woman's Home Companion, headed the session on Dryers.

Elizabeth Sweeney Herbert, McCall's, was chairman of the session on Home Laundry Supplies.

Edith Ramsay, The American Home, served as moderator on the Ironer discussion.

Advice and information from the consumer view point

Miss Davison complimented the manufacturers on the high caliber of their home service directors and urged that the manufacturers take advantage of the "million dollars" worth of advice and information from the consumer viewpoint contained in the minutes of the Conference.

Miss Genger declared that there is definite need for laundry equipment and textile manufacturers to get together for their mutual benefit.

Miss Swann's dryer group discussion also emphasized the need for education in the variety of fabrics available to homemakers, and urged closer cooperation among textile and equipment producers.

Mrs. Herbert pointed out that bleaching instructions by manufacturers of bleaches and by editors and makers of washers are at direct variance. She urged a meeting of the minds.

Keeping the ironer sold

Miss Ramsay said that in the ironer field the greatest need is to keep the ironer sold once it is in the home and that manufacturers should see to it that customers are given full post-sales advice and that a follow-up be made about three months following the sale to make sure the advice is being used.

Other topics of sessions

Among other points brought out in the panel sessions were the following:

Many things do not need to be washed by hand but are still marked for hand washing in department stores. This condition calls for educational work. There is need for clarification of terminology relating to soap, "synthetic detergents" "special detergents", etc.

Both participants in the Home Laundry Conference and the sponsoring manufacturers were particularly pleased with the growth of this comparatively new association movement and all agreed that it could result in much closer and more profitable cooperation between all groups from equipment manufacturer to consumer.

A huge outdoor mural...

a panorama of the old west

THE world renown Harold's Club, in Reno, Nevada, is now adorned with one of the largest spectaculars to be found anywhere in the world.

The entire front, from the ground floor up, measuring some 40′ in height and nearly 90′ in length, is completely covered with a vast pictorial mural and neon sign display featuring a panorama of the old west.

The mural is intended to show a typical covered wagon train crossing a mountainous region in the west. The pioneers are evidently unaware that they encamped for the night near an Indian village just across the gorge into which a waterfall plunges.

Electrical Products Corp. was commissioned to layout and install the display. Payne Mahoney, Inc. in turn was chosen to furnish the porcelain enameled mural. While the entire front is of porcelain enamel, the largest part of the front is devoted to a mural executed in the style and technique of an oil painting.

Facts on the mural proper

Size: 38′ long by 78′ wide.

Material: 16 gauge enameling iron

Type of construction: pan-type panels

Size of panels: 42″ x 48″ including flanges

Number of pieces: 236

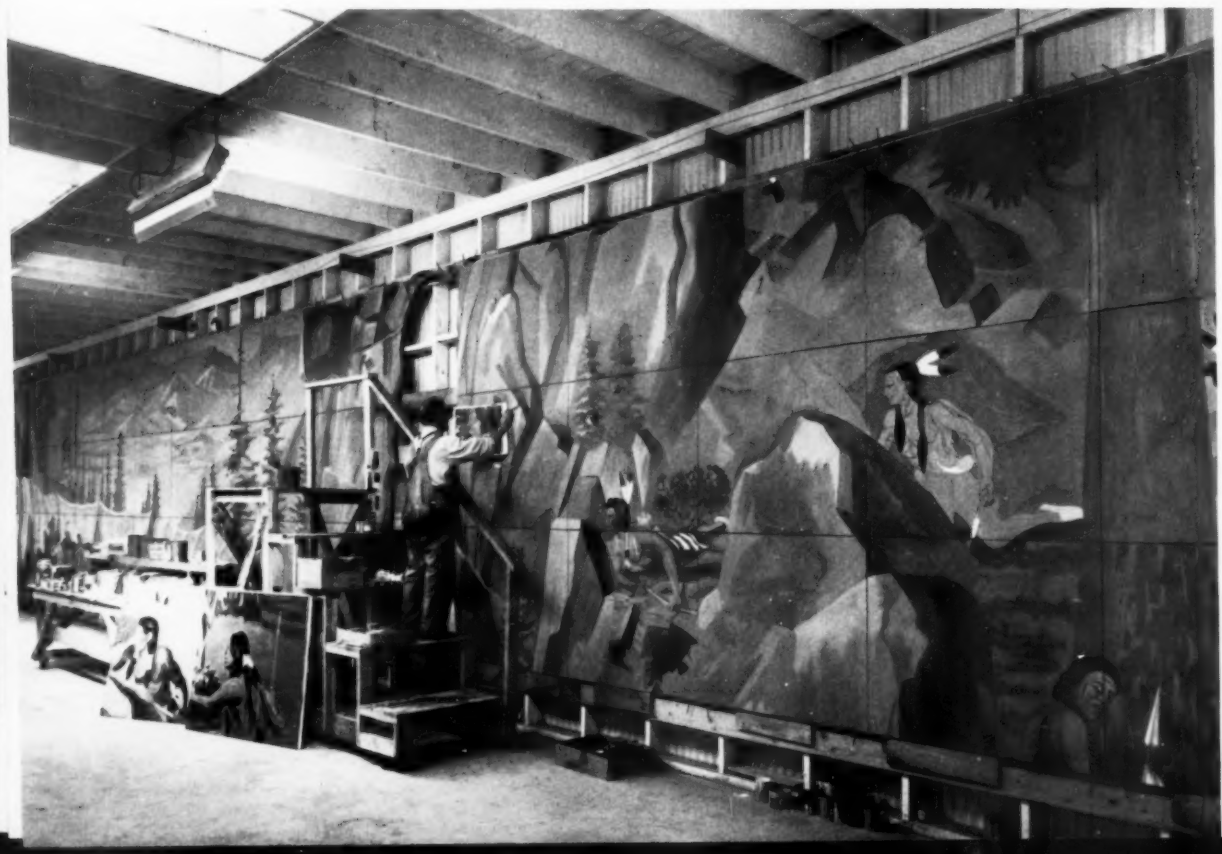
Weight of installation: 7 tons

Colors: full range of spectrum

The method of application of porcelain enamel is as follows: neutral background color fired over ground coat—panels then set up on wall in rows of three as shown in picture on this page. The original colored paint-

Right: This colorful mural is seen by an average of 5000 persons a day. It is impossible to reproduce in black and white the rich tones of the mural.

Below: One of the artists, Lyman Jennings, is shown using the method of roughing in shapes and colors before adding finishing touches.



ing was traced, blown up to size, and the line work perforated. The resultant patterns were then punched in the proper places and actual painting begun.

Every square inch of the entire mural was painted by hand to achieve the effect of an oil painting. No stencil or air gun technique was employed. Two pictorial artists worked continuously for 11 weeks, with two other artists working part time.

As each series of three rows were completed, two were taken down and fired. Two fresh rows were lined up with the remaining unfired row to assure continuity of color and drawing. This process was repeated until the job was finished. After firing, three rows of fired panels were laid out on the floor for inspection and comparison with the original for color, drawing, and value.

Color control was attained by mixing and firing samples before applying to the painting. This was especially true where delicate tones of purple, rose, and flesh tints were required.

When fabricated, the panels were numbered by piece and lettered by row. This enabled the shop to keep each panel in its proper position with relation to the others. The finished panels were then crated, one row to a crate, and in their proper numerical sequence. The installation crew followed the same procedure in erecting each row as had been practiced in the enameling shop.

The waterfall in the mural is a transparent plastic "scene in action." An effective arrangement of moving lights achieves a realistic illusion of water falling. The campfire is also illuminated in such a way as to give a flickering light that is also very natural. Floodlights from across the street supply light for night time illumination.

The artists on the job were Lyman Jennings, Clarence Stetson, Sargent Johnson, and Denis Mahoney.

A torsion test for enameled steel

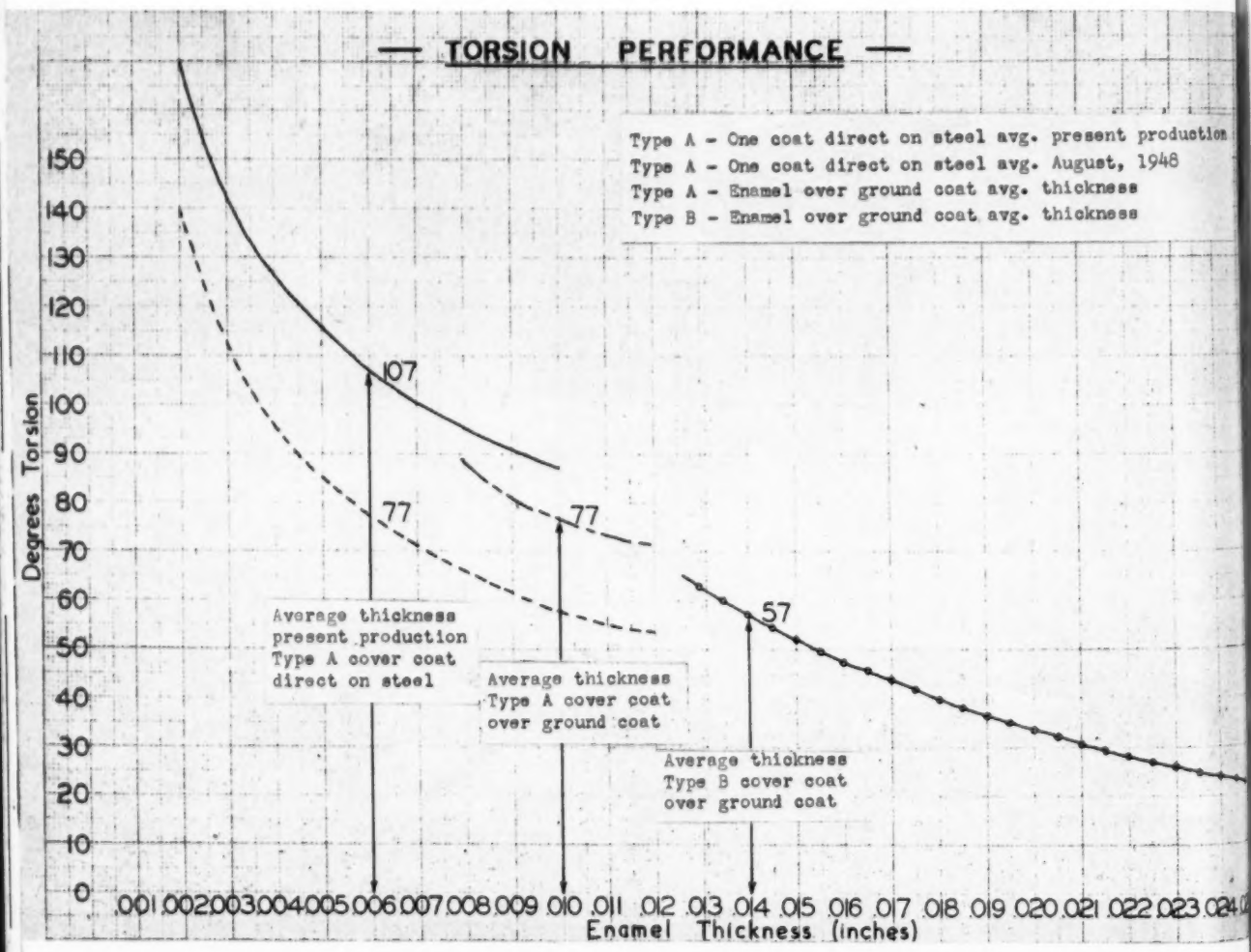
this test shows good correlation with pre-shipment tests on packaged products and is effective for plant process control

A national survey has shown that 92% of the porcelain enameled products that were found to have broken enamel after completion were damaged between the time they left the assembly lines and the time they were installed at the final destination. Only 8% of the products were found damaged after installation and this represents damage after a period of years. These results pointed to the importance of a practical test for resistance to torsional strain as might be exerted during handling or shipping operations. At the Westinghouse Electric Corporation plant in Mansfield, Ohio, it was decided to make a thorough study of the possibilities for instituting a practical torsion test that could be used for process control and the data from which could be logically correlated with other studies.

Existing Porcelain Enamel Institute standards on torsion were used by Westinghouse as a basis for the work. After running literally thousands of laboratory tests, it was found that good correlation could be obtained between the torsion test as described in this article and the standard pre-shipment tests on completed PACKAGED PRODUCTS as recommended by the National Safe Transit Committee.

After months of testing at the lab-

This chart shows the torsion performance of various enamel processes.



oratory level the torsion test equipment was refined to include the following improvements:

(1) to permit twisting a one-inch angle from 0 to 180°.

(2) to eliminate the personal element in relation to varying speeds of twisting (to accomplish this the worm gear drive was changed to give approximately 10° twist for each rotation of the crank).

(3) to gain protection for the operator from possible injury from flying fragments at point of enamel failure (to accomplish this the position of the sample was reversed so that the breakage occurs on the bottom of the piece). A mirror is placed on the instrument so that the point of failure is always visible.

Torsion tests are not new, but Westinghouse experience indicates that the test as described parallels the actual condition to which the product is subjected during transportation and handling.

Following the laboratory work, this torsion test was standardized and placed into production for all enameling process control in the early part

to Page 58 →

Editor's Note:

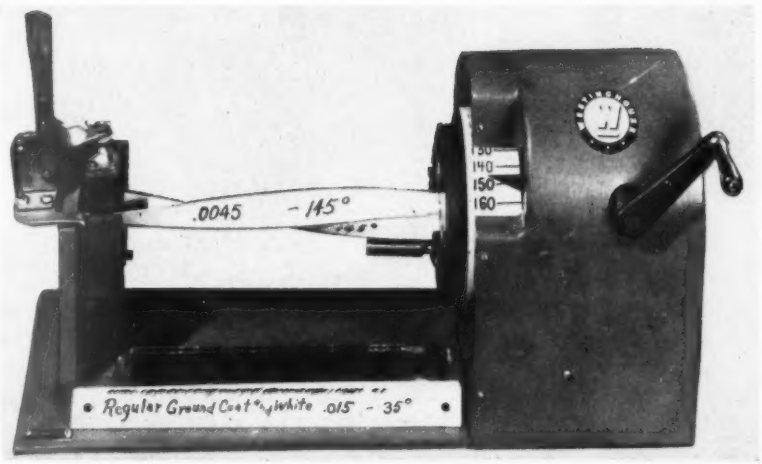
Many months ago, while visiting the Mansfield plant of Westinghouse Electric Corporation, your editor viewed the operation of a device designed to test the resistance of porcelain enamel to damage under torsion test. The practicability of this test seemed immediately evident, and we requested information for publication in *finish* so that all enamel plant operators might judge its adaptability for their own operations.

The testing device has now gone through all preliminary laboratory work and one full year of correlation with plant operations and field survey work.

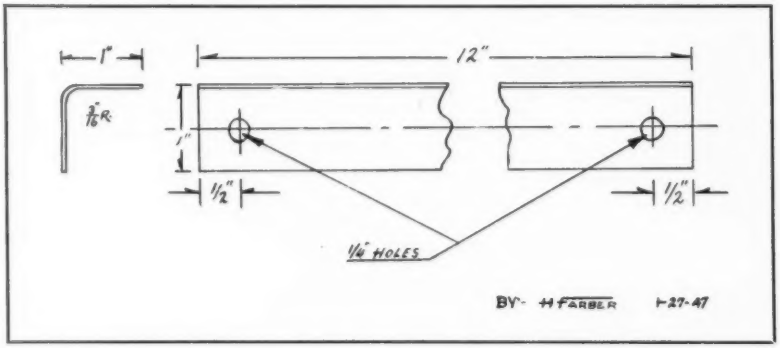
For a number of years, when enamel technicians and shop operators have met for discussion, the question of "adherence" tests has been in the limelight. While enamelers have agreed that some type of impact test is important for adherence testing, it has been repeatedly stated that in the case of many of the larger types of porcelain enameled products, such as major appliances, failure is more likely to occur as a result of torsion than as a result of impact. Another weakness of depending on an impact test alone is the difficulty of correlating the results with actual conditions of failure in the finished product.

Another problem was presented with the advent of extremely thin enamel coatings applied direct to steel.

The test described in this article would seem to fill a definite need for a simple but effective method of checking the resistance of porcelain enameled metal to torsional strain, and at the same time provide the enamel plant operator with data that can be logically correlated with plant operations and field research.

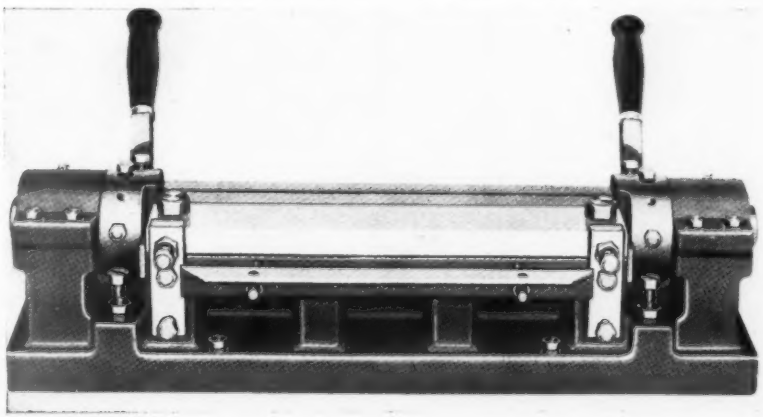


(A) The edge of piece in this test fixture is starting to shatter.



(B) This line drawing shows the standard sample used for the test.

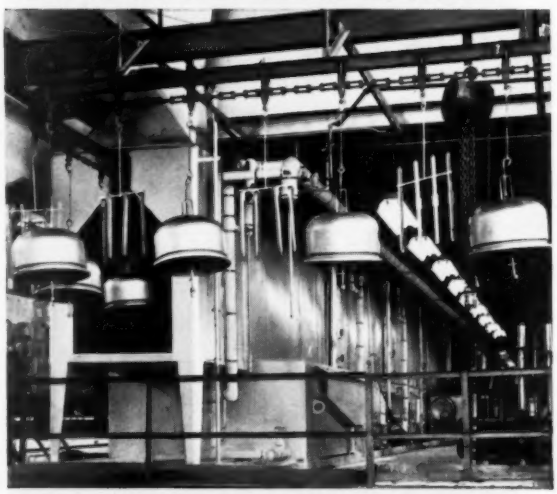
(C) This photo shows the bender used for making the test sample.



COMPLETE *Finishing* SYSTEMS

for ENAMEL • LACQUER • PAINT

Aluminum tubs, part of a domestic washing machine, receiving two coats of special synthetic enamel in Mahon Hydro-Filter Spray Booths.



Mahon Six Stage Metal Cleaning and Aladizing Machine. In this phase of the finishing process, steel and aluminum parts are subjected to Alkali Cleaner, Mild Alkali and Emulsion Solution, Cold Water Rinse, Aladine Treatment, Another Cold Water Rinse, and, finally, a Mild Chromic Acid Solution. Parts then proceed through Dry-Off Oven, Spray Booths and Finish Baking Oven.

Enamel Coating of ALUMINUM SURFACES Requires Special Processing for Durability!

In planning this complete finishing system for enamel coating aluminum tubs, along with other steel parts on the same conveyor line in the plant of a household appliance manufacturer, special processing and procedure were developed to produce a durable, alkali resistant coating on aluminum which would stand up under severe conditions of wear and impact. The complete system was planned, engineered and installed by Mahon . . . it consists of a six stage Cleaning and Aladizing Machine, Dry-off Oven, two Hydro-Filter Spray Booths —one for aluminum tubs, the other for steel parts—a Filtered Air Supply System and Baking Oven which bakes the enamel finish on both aluminum and steel parts. This is another typical Mahon solution of finishing equipment requirements to produce specific results. If you are contemplating new finishing equipment, or are faced with a finishing production problem, you can turn to Mahon with complete confidence—because, the Mahon organization has pioneered development in this highly specialized field for twenty-nine years . . . this twenty-nine years of experience, which covers every industry where finishing constitutes a major production operation, together with constant research and experimentation, has endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available to you elsewhere. See Mahon's Insert in Sweet's Mechanical Industries File, or write for Catalog A-649.

THE R. C. MAHON COMPANY

HOME OFFICE and PLANT, Detroit 11, Mich. • WESTERN SALES DIVISION, Chicago 4, Ill.

Engineers and Manufacturers of Complete Finishing Systems—including Pickling Equipment, Metal Cleaning and Rust Proofing Equipment, Dry-off Ovens, Hydro-Filter Spray Booths, Filtered Air Supply Systems, and Drying and Baking Ovens. Also, Core Ovens, Dust Collectors, and many other Units of Production Equipment.

MAHON

NATIONAL LEAD HELPS FORM FIRM TO MARKET TITANIUM

National Lead Company and Allegheny Ludlum Steel Corp. have jointly formed Titanium Metals Corp. of America to market titanium, according to a report. It was stated that National Lead will convert ore from its New York mines into a "sponge" metal and Allegheny Ludlum in turn will convert that into ingots and finished products under the new arrangement.

PRESSED STEEL CAR EXPANSION

Pressed Steel Car Company has announced the purchase of Solar-Sturges Manufacturing Co., Melrose Park, Ill., for approximately one million dollars. The acquisition of Solar-Sturges, manufacturers of milk cans and other dairy equipment, is the first step in Pressed Steel's long range program of diversification, it was stated.

SORENSEN HEADS DEEPFREEZE DIVISION OF MOTOR PRODUCTS

L. J. Sorensen, formerly treasurer and controller, has been named vice president and general manager of the Deepfreeze appliance division of Motor Products Corp., North Chicago, Ill., according to a report.

Other promotions at Motor Products (Detroit) included the appointment of L. G. Jacques as executive vice president, and D. J. Bracken, formerly vice president in charge of manufacturing, as vice president and general manager of the automotive division.

DETROIT-MICH. APPOINTMENT

Otis R. Candler has been appointed vice president in charge of all

manufacturing operations at Detroit-Michigan Stove Co., Detroit. He started with the company in 1926 as assistant superintendent and was made factory manager in 1942. Prior to joining the stove company, he was with Dodge Bros.

INLAND STEEL TAKES OPTION ON CANADIAN IRON ORE TRACT

Philip D. Block, vice president of Inland Steel Company, has disclosed that Inland has taken an option to lease an iron ore tract from Steep Rock Mines Ltd. of Canada. The tract is described as a "large undeveloped acreage known as 'C' ore body, in the vicinity of Steep Rock Lake, Ontario." It was stated that Inland proposes to start exploration operations before the ice is out of the lake.

INDUSTRIAL INSTRUMENTATION TRAINING SCHOOL SCHEDULE

Industrial instrumentation training school schedules to be conducted for the first six months of 1950 by Brown Instruments Division of Minneapolis-Honeywell Regulator Co. will include three short courses of five weeks each and one long course of 13 weeks.

In addition to the short courses for customers' men, to be held during March, May and June, intensive courses will be held for specific industries, said M. L. Ladden, chief instructor.

DETROIT STEEL PLANS $10 MILLION EXPANSION

Detroit Steel Corporation has reported the purchase of physical property, plants and equipment of Portsmouth Steel Corp. Company officials reported that the Portsmouth, Ohio, company would continue as a separate entity.

One of the country's major cold rolled strip manufacturers, Detroit Steel plans to start a 10 million dollar expansion program at the Portsmouth Works.

HAYLES TO CONLON-MOORE

Word has been received by *finish* that Prince H. Hayles has joined Conlon-Moore Corp., Joliet, Ill., as general foreman of the enameling department. James Snevely is department superintendent, and Melvin V. Phelan is general superintendent.

Hayles formerly was assistant department manager of the porcelain department at the West Pullman (Ill.) plant of the Ingersoll Steel Division of Borg-Warner Corp.

LANE HEADS PENNSALT'S NEW PUBLIC RELATIONS DIVISION

Formation of a public relations division of Pennsylvania Salt Manufacturing Company, with Cleveland Lane

as manager, was announced recently by George B. Beitzel, Pennsalt president.

Lane, who formerly served as Pennsalt account executive for the firm's advertising agency, joined the firm from Home Life Insurance Company.

NEW RESEARCH LABORATORY FOR COWLES CHEMICAL

Cowles Chemical Company, Cleveland, Ohio, has moved its research and development laboratory from the campus of Syracuse University to enlarged quarters at 105 South Townsend St. in downtown Syracuse, N. Y. according to an announcement by C. W. MacMullen, technical director for the company.

Research projects at Syracuse include development of heavy chemicals in the silicate field, laundry products, metal cleaners, detergents and bactericides for the food processing industries, organic research and the engineering of new processes and equipment for the company's three plants located at Lockport and Skaneateles Falls, N. Y., and at Sewaren, N. J. These projects are conducted by a staff of twenty chemists and engineers under the direction of Dr. MacMullen.

DIVERSEY NAMES FIVE NEW FIELD SERVICE MEN

The appointment of five new field service representatives in its metal industries department has been announced by The Diversey Corporation, Chicago.

In photo, left to right, are: Frank E. Smith; B. B. Button, sales training instructor and former promotional manager; D. F. Seymour, sales training instructor; W. R. Swift; and C. L. Hodgins, of Diversey Corporation of Canada, Ltd.

SCOTT RETIRES AT YS&T

Walter E. Scott, manager of flat rolled sales for The Youngstown Sheet and Tube Company, retired December 31. He had been with the company for 43 years, having joined the company in 1906 as a clerk in the mail room. He was advanced to the pipe sales department, then transferred to rod and wire, and in 1914 entered the sheet sales department.

ANDERSON HEADS U.S.S. EXHIBITS

Harry J. Anderson has been promoted to manager of the exhibit section of the advertising division of United States Steel Corporation, it was announced by G. Reed Schreiner, director of advertising. Formerly with Gardner Display Co., Anderson first joined U.S. Steel's exhibit section in 1940.

GAS RANGE SHIPMENTS RISE TO ALL-TIME HIGH IN OCTOBER

During the month of October, 1949, unit shipments of domestic gas ranges reached an all-time high, according to companies approximating 60 per cent of the industry. Figures adjusted to represent the total domestic gas range industry indicate that shipments during October amounted to 258,000 units. The previous industry peak occurred in both May and October, 1948, when slightly less than 258,000 units were shipped. On October 31, 1949, unfilled orders totalled 107,457, it was stated in the report released by the Gas Appliance Manufacturers Association.

Unit shipments of automatic gas water heaters also continued an upward trend in October. Expanding reported figures to represent the entire industry, 151,000 units were estimated to have been shipped during the month, and 1,158,000 during the first ten months of 1949.

SMOKELESS COAL-BURNING HEATERS PLACED ON MARKET

Smokeless residential coal-burning heaters, developed jointly by Bituminous Coal Research, Inc., and the Stove Manufacturers Research Group, are now being manufactured by King Stove and Range Co., Sheffield, Alabama, according to a BCR report.

It was stated that 250 cast iron

radiant-type and steel-jacketed circulating-type heaters are currently being distributed under the name of Martin Smokeless Heaters. This distribution will permit adequate consumer reaction to the heaters prior to greater production later this year, it was stated. Heaters have been distributed in 14 different states.

WASHER-IRONER OCTOBER SALES

Industry-wide factory sales of standard-size household washers in November totalled 298,717 units, or 6.4 per cent below the total for the same month in 1948 which was the highest year in the industry's history.

Factory sales of ironers in November were second largest of the year, 35,000 units, or within 2.9 per cent of the 36,045 year's record set in October, and 16.6 per cent below 42,000 ironers sold in November, 1948.

FLORENCE STOVE NAMES REEVES TO PRODUCT ENGINEERING POST

Herbert M. Reeves, chief engineer of Florence Stove Company's Kankakee plant, has been promoted to a newly-created position of director of product engineering, according to Robert H. Taylor, Florence president. In his new position, Reeves will be responsible for all research, development, and new product engineering for the firm's three plants at Kankakee, Ill., Gardner, Mass., and Lewisburg, Tenn. He will headquarter at Kankakee.

For nearly 15 years, he was chief engineer at the Kankakee plant, during which time he is credited with developing many new improvements and engineering advancements in Florence products. He is a member of the gas range approval-requirements committee of the American Gas Association.

DE VILBISS ADVANCES FIVE MEN TO KEY POSITIONS

PEEPS

ROBINSON

DELGER

PITT

Promotion of five executives to key company positions has been announced by Howard P. DeVilbiss, president of The DeVilbiss Company, Toledo, Ohio, manufacturers of spray finishing equipment.

William A. Delger, former plant manager, was named vice president in charge of manufacturing; Don J. Peeps, chief engineer, was advanced to vice president in charge of engineering; John M. Robinson, treasurer, was elected vice president and treasurer; Frank R. Pitt, the company's legal counsel, was named secretary; and R. Miles Booth, member of the treasurer's staff, was appointed assistant secretary and assistant treasurer.

Delger joined DeVilbiss in 1946, after service with an eastern firm as a consulting management engineering supervisor. Peeps entered the firm's employ in 1928 as a factory worker, becoming chief engineer in 1944. Robinson joined the company in 1946. Pitt is legislative chairman of the National Paint, Varnish and Lacquer Association.

FOOTE MINERAL OPENS RESEARCH AND DEVELOPMENT LAB

Expanded facilities for scientific research in the field of chemicals, ceramic materials, metals and alloys, electrode coatings and refined ores, were publicly displayed for the first time at a recent informal open house held at the Foote Mineral Company Laboratories, Paoli, Penn.

The new three story building has been equipped to carry out basic re-

search, product development, and engineering studies related to improvement in equipment design and process control. Equipment is available for formulating, analyzing, testing, and producing a wide range of ceramic products.

The welding laboratory is a complete unit in which electrode coatings are prepared from selected raw materials, are applied to welding rods by extrusion and are then tested by welding with AC or DC welding machines. A machine shop is available for the production of special machinery. There are also a minerals separation laboratory, furnace room, and a crushing and grinding laboratory.

The staff consists of 35 scientists and technicians under the direction of Dr. S. C. Ogburn, Jr., manager of research and development for Foote Mineral.

NEW GAS WATER HEATER CAMPAIGN OPENS IN MARCH

H. Carl Wolf, managing director of the American Gas Association, left, is shown emphasizing to H. Leigh Whitelaw, managing director of the Gas Appliance Manufacturers Association, the new 1950 "Court of Flame" automatic gas water heater campaign which opens March 1 and ends September 30. Both Wolf and Whitelaw are expressing the new railroad "All Aboard" theme of the campaign.

The campaign to stimulate sales of top quality automatic gas water heaters is sponsored by the Gas Water Heater Division of GAMA in cooperation with AGA. The new campaign differs from the 1949 "Court of Flame" program in that every salesman will be given an opportunity to win a prize and the nature of the prize will only be limited to the diligence of the individual participant. It is anticipated that over $180,000 worth of prizes will be awarded. The prizes range from nylon stockings to television consoles.

GAMA NAMES FIVE NEW MEMBERS

Five new members of the Gas Appliance Manufacturers Association were elected to membership in mid-January, according to H. Leigh Whitelaw, GAMA managing director.

The following companies were elected: Heat Controller, Inc., Addison, Mich.; Hynes & Cox Electric Corp., Waldorf, Md.; The Sunray Stove Co., Delaware, Ohio; White Products Corp., Middleville, Mich.; and Zick Sheet Metal Works, Dearborn, Mich.

More than 500 manufacturers of gas appliances and equipment are now members of the Association, it was stated.

ACME STEEL APPOINTMENT

Carl J. Sharp, president of Acme Steel Company, has announced that H. L. Bills has been elected vice president in charge of industrial relations for the company. Bills had served as director of industrial relations since 1937. He is a member of the industrial relations committee of the American Iron and Steel Institute.

CANADIAN FIRM TO MAKE GIBSON REFRIGERATORS

Gibson Refrigerator Co., Greenville, Michigan, has announced the licensing of Bedard Co., Ltd., of L'Assumption, Quebec, to manufacture Gibson refrigerators in Canada. The licensing of the Canadian organization is one major result of the firm's intensified export program, stated Charles J. Gibson, president.

LEW MARTIN DIES IN CRASH

Lewis E. Martin, sales and service engineer for The O. Hommel Co., was

killed in an automobile accident near his home in Plainwell, Michigan, December 29.

Lew's home was originally in Newark, Ohio, where he worked in the enamel department of Wehrle Company. He later went with Ebco Products Co., Columbus, and then returned to The Florence-Wehrle Company,

 finish

Newark, before joining The O. Hommel Company in January, 1937. Lew did sales and service work for O. Hommel throughout Michigan, Indiana, Illinois, Wisconsin, and Ohio.

FERRO CLEANING COMPOUNDS TO MAC DERMID

Ferro Enamel Corporation, Cleveland, Ohio, recently announced the transfer of the manufacturing and distributing rights of their complete line of cleaning compounds to MacDermid, Inc., of Waterbury, Conn.

In making the announcement, Glenn Hutt, assistant to the president of Ferro, said that the decision to transfer the cleaning portion of their business to MacDermid was prompted by their desire to concentrate on newer aspects in the porcelain enameling field.

The metal cleaning compounds will be manufactured by MacDermid at plants in Cleveland, Chicago, and Waterbury, with warehouse stocks also available in New York, Detroit, and St. Louis. Technical representatives and service men are located in those and other industrial areas. The sale of Ferro metal cleaners will be through regular MacDermid distributors in the Midwest and Southern States, and through MacDermid representatives in the Eastern States. Ferro Enamel will resell the cleaners exclusively to the porcelain enameling field. The West Coast is not included in the new arrangement and will continue to be serviced by Ferro of Los Angeles.

ELECTROPLATERS TO HOLD ANNUAL MEETING IN BOSTON

The 37th annual convention of the American Electroplaters Society, to be held June 11 to 15, at Hotel Statler, Boston, is also to be featured as the 4th International Electrodeposition Conference with the collaboration of the Electrodepositors Society of England.

Strong technical sessions are being planned, including one session on "A.E.S. Research," symposia sessions on "Smoothing Processes in Metal Finishing," "Mechanical Finishing Processes," and "Advance in Electroforming, including the Graphic Arts," and a fifth session on "Miscellaneous Plating Subjects."

PEMCO NAMES ATHY TECHNICAL ASSISTANT TO PRESIDENT

Lyman C. Athy has been appointed technical assistant to the president of Pemco Corporation. According to an announcement by Richard Turk, president, Athy will direct his efforts towards coordinating and expediting research and development, manufacturing procedures and problems, and customer problems and customer service.

A graduate of Ohio State University, Athy has had 25 years of extensive practical production and research and development experience in the porcelain enamel industry.

SCOVILL BUILDS NEW DEPOT IN CHICAGO

Scovill Manufacturing Co., of Waterbury, Conn., recently completed a new brass mill products depot containing expanded sales office facilities at 4105 West Chicago Ave., Chicago, Ill. This new location, manned by the firm's mill products division and manufacturing divisions personnel, contains 27,000 square feet of floor space. The company is entering its 80th year of direct representation in the Chicago area.

WATER SOFTENER MFRS. ANNUAL MEETING, MARCH 7-8

The first annual meeting of the National Association of Water Conditioning Equipment Manufacturers will be in Hotel Sherman, Chicago, March 7 and 8, according to Herbert C. Angster, Association executive secretary.

"This annual meeting will mark the end of the Association's first year of operation and will enable a number of members to see at first hand the progress that has been made in creating an industry-wide public relations program," stated Angster.

The first day of the meeting will be devoted to separate sessions for zeolite, steel tank and component parts divisions of the Industry Engineering Committee.

The general meeting will be held on the second day and will be featured by addresses by representatives of allied industries, the election of officers, and a preview of plans for the next administrative year.

PACKAGING EXPOSITION SPACE SALES AHEAD OF LAST YEAR

The American Management Association has reported that more exhibit space for the 1950 packaging show, to be held at the Navy Pier, Chicago, April 24-47, has already been contracted for than the total of all space at the 1949 show.

CARNEGIE-ILLINOIS NAMES JENKS V.P. IN CHARGE OF OPERATIONS

The election of Stephen M. Jenks as vice president in charge of operations, Carnegie-Illinois Steel Corp., was announced by C. F. Hood, president of the U. S. Steel subsidiary. At

the same time, the appointment of William C. Oberg to a new position as general manager of operations of Carnegie-Illinois was announced.

ANNOUNCE MERGER OF AIR FILTER, VENTILATING EQUIPMENT FIRMS

The merger of American Air Filter Co., Inc., Louisville, manufacturers of air filters and dust collectors, and Herman Nelson Corp., Moline, Ill., producers of quality heating and ventilating equipment, was announced by W. M. Reed, president of American Air Filter. It was stated that the Nelson Corp. will be operated as the Herman Nelson Division of American Air Filter.

REMA ANNUAL MEETING OPENS IN CHICAGO, MARCH 30

The 1950 annual meeting and related sessions of the Refrigeration Equipment Manufacturers Association will be held at the Edgewater Beach Hotel, Chicago, March 30, 31, and April 1.

The schedule for the 3-day event is as follows: March 30, meeting of board of directors; March 31, annual meeting, membership luncheon, banquet; April 1, meeting of product sections, credit group, committees, etc.

TENNESSEE ENAMEL NOW TEMCO

Temco, Inc. is the new name adopted by the firm formerly known as Tennessee Enamel Manufacturing Co., according to an announcement by W. B. Evans, president.

Organized in 1921, the company's major production consisted of job enameling work. Today, Temco is a leading producer of gas appliances.

NEW MINNESOTA MINING OFFICE

Plans for the construction of a $3,000,000 office building by Minnesota Mining & Mfg. Co., St. Paul, have been announced by R. P. Carlton, president. The building should be completed by the summer of 1951, according to C. P. Pesek, vice president in charge of engineering.

Another part of the firm's expansion program is a two-story, block-long manufacturing plant now under construction. It is scheduled for completion late this year at a cost of more than $2,000,000, it was stated.

CANADIAN CERAMIC SOCIETY ANNUAL MEETING, FEB. 6-8

The 48th annual convention of the Canadian Ceramic Society will be held at the General Brock Hotel, Niagara Falls, Ontario, February 6, 7 and 8. The Enamel Division meeting will be held February 7, according to an announcement by L. C. Keith, assistant secretary of the Society.

PLAN MERGER OF STEVENS AND UDYLITE COMPANIES

An agreement contemplating the merger of Frederic B. Stevens, Inc. into The Udylite Corporation has been announced by officers of the two firms. The necessary formal agreements are being prepared and

will be submitted to the boards of directors and stockholders of the companies.

The Stevens firm is a leading producer of polishing compounds, foundry supplies and various related products, and Udylite is one of the leading manufacturers of plating machinery, supplies and equipment. Stevens has offices and warehouses in principal cities and will continue its operation as a division of The Udylite Corporation, it was stated.

GENERAL BOX CONSOLIDATION

N. A. Fowler, director of sales, General Box Company, recently announced the consolidation of the firm's Chicago and Louisville sales territories.

GEORGE WALNE

The headquarters of the enlarged territory will be in Louisville, where the company operates plants manufacturing corrugated boxes, wirebound boxes and crates, and wood cleated corrugated containers.

The following personnel changes were announced by Fowler: George T. Walne, vice president, will be transferred to Louisville where he will be in charge of sales for the combined territories; and C. L. Bruckert, who had administered sales in the Louisville territory, will be promoted to division sales promotion manager. Wm. C. Embry, vice president and member of the board of directors, will remain in Louisville as division manager, it was stated.

YS&T NAMES TUTHILL MANAGER OF FLAT ROLLED SALES

John M. Tuthill has been advanced to manager of flat rolled sales for The Youngstown Sheet and Tube Company, succeeding Walter E. Scott, who retired.

L. E. Arnold has been transferred from the firm's Detroit district sales offices to Youngstown, Ohio, as assistant manager of flat rolled sales, succeeding Tuthill.

In 1935, Tuthill left Pittsburgh Cold Rolled Steel Co. to become assistant manager of flat rolled sales department. Previously, he had been associated with Carnegie-Illinois Steel Corp. and Follansbee Steel Corp.

HARRY SMITH DIES

Finish regrets to announce the death of Harry S. Smith, vice president of Burgess Norton Co., Geneva, Ill., on January 10, two days before

the annual meeting of the American Home Laundry Manufacturers' Association.

Mr. Smith was very active in the work of this Association and had served as chairman of the Associates group.

NORGE OFFICES TO CHICAGO

The Norge Division of Borg-Warner Corp. will move its offices from Detroit to Chicago within the next few months, according to an announcement by George P. F. Smith, Norge president. The firm's Chicago offices will be located in The Merchandise Mart and will occupy 35,000 square feet of space, it was stated.

THE STORY OF IRONRITE'S SUCCESSFUL SELLING PLAN

For many months *finish* has been campaigning editorially for increased sales training among metal products manufacturers, for increased attention to the training of dealers and retail salesmen and for down-to-earth door-bell pushing sales methods. It is with a great deal of pleasure we present briefly the successful story of the Ironrite Ironer Company, Mt. Clemens, Michigan.

Early in 1949 Ironrite sales were lagging and the company was merely breaking even. Hal Biddle, general sales manager, told us how, in a few short months, the company came out of this low point successfully and made a spectacular business gain.

The start of the successful program was related to an industry campaign in which a team of men rang doorbells and used old time sales techniques in a test campaign at Decatur, Illinois. As a result of this effort 41 ironers were sold in 10 days, where a dealer had sold only 38 ironers in the previous year.

Following this, a larger test was run in Toledo and Ironrite's national sales force, including 20 home service advisors, went to Toledo for the test. They rang doorbells side by side with Toledo dealers and again the answer was sales success. Ironrite salesmen then went back to their respective territories and worked with distributor salesmen to show their dealers how it is done. After the distributor salesmen were trained, they continued to train dealer salesmen in an ever widening circle.

As a result of this "technique" sales picked up immediately. In June they were 76% over the low point in April; July was 70% better; August 123%; and September, 200%. Dealers' orders for October were 235% better and for November 356%.

Plant production is now considerably ahead of the 1949 peak and, according to Biddle, distributors and dealers are increasingly happy with their profits.

This "down-to-earth" selling brought $255,000.00 in to the Ironrite Company in four months with sales the highest in history. As sales effort was increased advertising was

stepped up on a comparable basis.

This is certainly an excellent example of what *can* be done by hard selling and doorbell pushing while many companies and their dealers are waiting for customers to walk in and buy. We continue to recommend this system to others.

CARNEGIE-ILLINOIS UPS MERRELL

Dwight L. Merrell, formerly manager of sales for construction industries in the Chicago area for Carnegie-Illinois Steel Corp., has been named manager of the firm's Philadelphia sales district, according to J. Douglas Darby, sales vice president.

PEMCO SERVICE STAFF CHANGES

J. B. Willis, service manager of Pemco Corporation, has announced that Wilfred M. (Bill) Paquin has joined the Pemco service department as a service engineer for the Ohio-Indiana area, with headquarters in Dayton. Paquin had previous industrial experience with Ferro Enamel, Norge, Quaker Chemical, O. Hommel, and as joint owner of Paquenamco, Inc.

Willis also announced the assignments of Theadore Buit as service engineer from the Ohio-Indiana area to Illinois, and William Blackburn from the West Coast service staff to color technician in the firm's color laboratory in Baltimore.

HAMPSON HEADS PENNSALT'S CHICAGO DISTRICT

John C. Hampson, former Indiana field representative for Pennsylvania Salt Manufacturing Company's Special Chemicals Department, has been named sales manager for the department's newly-formed Chicago district, according to an announcement by Joseph J. Duffy, Jr., departmental sales manager.

The new sales district, with offices at 20 N. Wacker Drive, Chicago, will include Wisconsin, Illinois, Indiana, and Missouri territories.

"The formation of the Chicago district is another major step forward in our over-all department program," said Duffy in making the announcement. "It is particularly fitting that this step will be accomplished at the start of our Centennial year and will be in full operating status to support our 1950 program."

INDUSTRIAL EQUIPMENT BUYING TO EQUAL 1948 PURCHASES

A recent survey of projected 1950 purchases of new machine tools, accessories, materials handling equipment, etc., by the American Society of Tool Engineers, reveals that 80% plan to buy as much or more as in 1948.

Of all firms surveyed, 45% expect to buy more, 35% about the same amount, 7% less, and 13% very little. The giants of industry planned the heaviest expenditures, with 79% expecting to spend more.

An ASTE analysis revealed that 52% of the companies canvassed will

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New Supplies and Equipment

B-30. New "glass" shipping tape

In a paper presented before the Michigan Chapter of the Society of Industrial Packaging and Materials Handling Engineers, Irvin Danielson, a packaging research engineer, described a new tape with glass filaments permanently imbedded in a resilient rubber adhesive — thus reinforcing the tape "like steel rods reinforce concrete."

The new tape has an acetate film backing and has glass filaments instead of rayon—thousands of parallel filaments that run lengthwise with the tape. The tape is recommended for strapping widely varying products from fibre-board cartons to banding steel coils and pipes.

More Information

For more information on new supplies, equipment and literature reviewed here, fill out the order form on this page.

B-31. New invisible cabinet latch

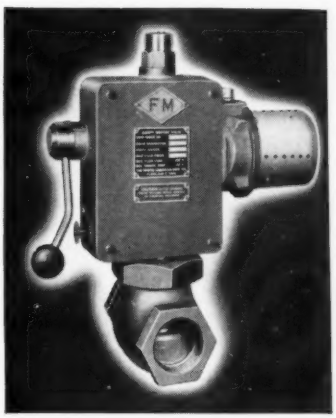
A new hidden latch for cabinet doors, appliance doors, etc., is called "Tutch Latch" and employs only two moving parts. Designers interested in smooth, unbroken exterior lines on cabinets or appliances will be interested in the fact that Tutch Latch has no visible part on the exterior of the door. A light pressure of the finger, wrist or elbow on the door panel releases the latch and opens the door . . . no handles, knobs or pulls. It is installed with the strike on the door and the latch fastened inside the cabinet.

B-32. Tool steel for hot work

A new tool steel has been designed and developed specifically for hot work. Marketed under the name B-47 Hot Work Steel, the new alloy has proved in extensive laboratory and field tests to have excellent resistance to shock and abrasion at elevated temperatures.

The new product is recommended for such applications as brass extrusion dummy blocks and dies, valve extrusion die inserts, forging die inserts, forging press dies, and hot punch tools.

B-33. Safety shutoff valve



A new safety shutoff valve is designed for the protection of industrial furnaces against dangerous accumulations of gaseous or liquid fuels in the event of power failure. This valve, approved by Associated Factory Mutual, is said to stop the flow of any gas or liquid the instant that current to its solenoid is interrupted. When the power is restored, the valve remains closed until the trouble is corrected, at which time the value is reset manually.

FINISH
360 N. Michigan Ave.
Chicago 1, Illinois

Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No._____ No._____ No._____ No._____

No._____ No._____ No._____ No._____

Name _____ Title _____

Company _____

Company Address _____

City _____ Zone____ State _____

NEW LITERATURE

201. Catalog on rubber-lined pipe

Covering the subject in detail, a new 8-page catalog section on rubber-lined pipe, fittings and valves has been issued. The catalog section gives the design, construction and service recommendations, lists many uses and

Grandpa's Learned a Lot Since 1901

Back in 1901, when Ing-Rich began making its own frit, Grandpa and Grandma assumed this firing-squad pose. A picture of them today would show them much more relaxed and confident, because of accumulated *experience*.

During those years Ing-Rich has also acquired a lot of know-how. Through constant analysis of customers' needs . . . detailed laboratory research . . . and actual plant testing right in our own job enameling department . . . we have produced PORCELFRIT, a product known and respected throughout the enameling business.

This experience is yours to command—at no extra cost. When you use PORCELFRIT you cash in on all the mistakes we've corrected, all the techniques learned, in 50 years of successful operation. Save yourself production headaches by specifying the product of long experience, PORCELFRIT.

INGRAM-RICHARDSON MFG. CO., OF INDIANA, INC.

OFFICES, LABORATORY AND PLANT

FRANKFORT, INDIANA

ING-RICH

PORCELFRIT

"The Plant Tested Frit"

pictures and describes the products.

202. Movie on "White Magic"

"White Magic", a 30-minute, 16 mm. sound movie in color, showing the latest techniques in the production, use and spray application of a white enamel, has been released for use by manufacturers of home appliances and other metal products.

Besides telling the story of how high quality finishes are made and applied, "White Magic" indicates how savings may be effected and the finish improved by using proper spraying technique. Hints of value to manufacturers and their finishing crews are contained in the film.

203. New method of computing return on machine tool investment

A new method of computing potential return on capital investment by metal working manufacturers in new machine tools has been devised.

Presented in the form of a booklet entitled, "Computing Return on Invested Capital — A Study in Machine Tool Arithmetic," the method carries shop computations of annual savings effected by a new machine tool on through the additional computations dealing with depreciation and Federal income taxes, in order to arrive at estimated net return over a 10-year period, the probable profitable life of the new machine.

204. Acid-proof drain line items

A new price list, issued by a manufacturer of acid-proof equipment, illustrates acid-proof equipment now available for handling corrosive wastes from chemical laboratories, chemical plants, plating rooms, steel mills and many other places.

205. "Step up production" booklet

A new "Step Up Production" booklet on the use of abrasive belts in industry is available on request. The booklet provides 36 pages of case-history examples and technical data on grinding and polishing with abrasive belts.

Also covered is a new "pre-finishing" technique in which the usual process of steel-forming-and-then-polishing is reversed in order to achieve maximum production line speed.

A torsion test for enameled steel

(Continued from Page 45)

of 1948. Illustrations accompanying this article show clearly the type of equipment used, and specifications for test samples.

Experience indicates the following as practical advantages of the test procedure:

(1) it quickly appraises the summation of all processing from the raw steel to the finished enameled product (example: if anything goes wrong in the processing, such as the use of improper steel, improper cleaning, underfiring, etc., it immediately shows up on the torsion failure).

(2) the test is practically foolproof in that anyone without previous experience can make the test with accurate results.

(3) the cost of the test is in a range that any production enameling plant can afford.

Illustration references

The piece in the test fixture (Photo A) is processed with cover coat enamel (.0045 thick) direct to the steel and has been twisted 145° and you will notice on the edge it is just starting to shatter. The test specimen shown lying at the bottom is regular ground coat with cover-coat enamel .015 thick. It shatters at 35°. Note the large area of enamel that has broken off.

The line drawing (Illustration B) shows the standard test sample. Photo C shows the bender for making the test sample.

Torsion test data

Chart on page 44 shows the performance of various enamel processes.

(1) Note on the chart that torsion test results (during our first month, August, 1948, of running range platforms 100% in production) that with an average enamel thickness of .006, failure occurred at 77° torsion. By continued improvements in the steel, nickle dip, improvements in the technique of processing, and last but not least, a major improvement in the type A frit, over the last fourteen months the torsion average has been increased to 107° at the same enamel thickness.

(2) Now let us take a look at the improvements of the other enamels since the war; the first is the ground coat with one cover coat type B frit. We finally reached an average of .014 thickness which averaged 57° torsion.

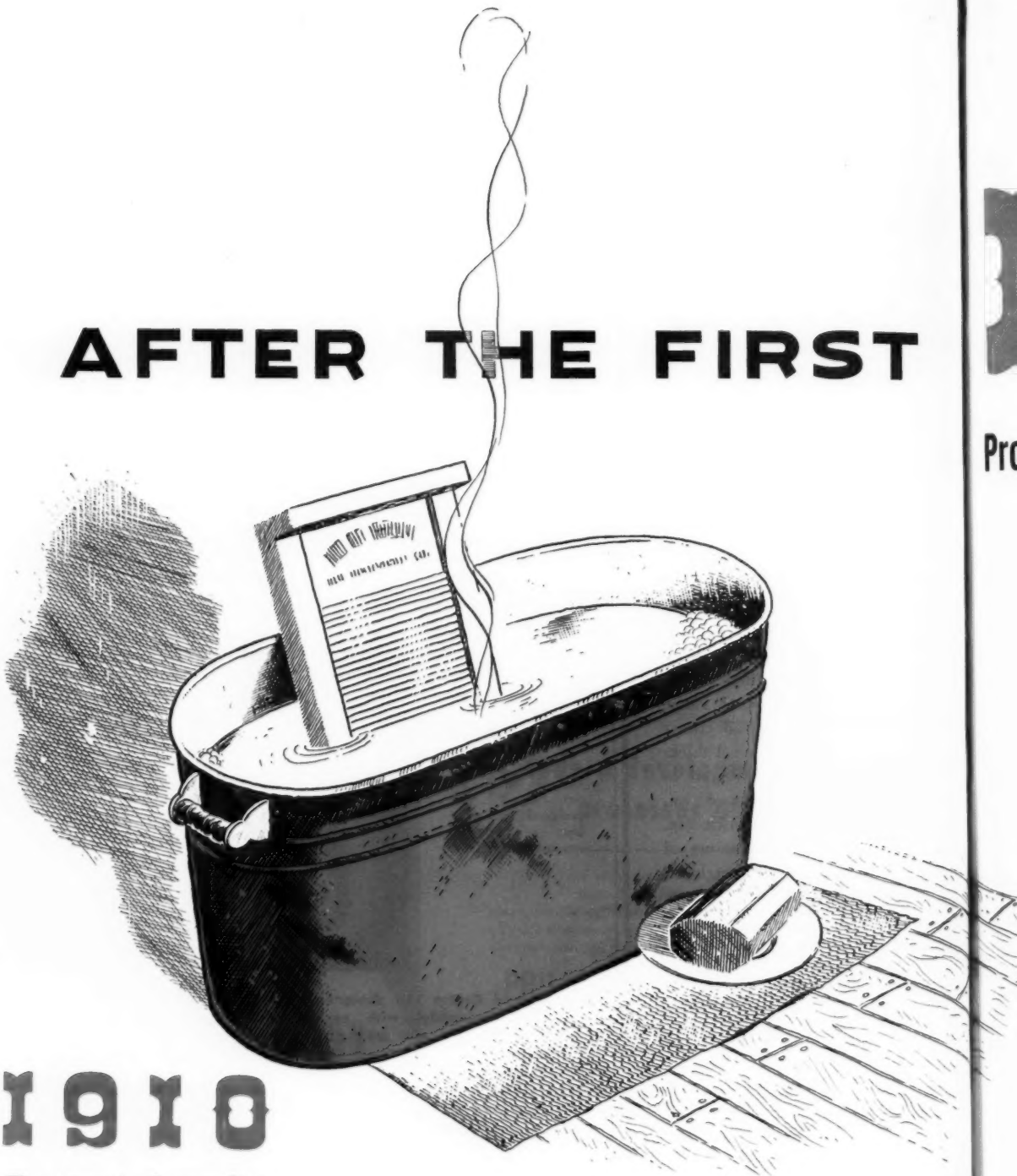
(3) With type A cover coat enamel used over ground coat, we reached an average of .010 thickness and torsion average of 77°.

Summary

Summing up, the improvements made since the war is spectacular in the enameling industry. However, in using ground coat and cover coat, it is obvious that the torsion of 107° average can never be reached because of applying more than one coat which automatically increases the thickness and torsion failure. One question that is usually asked is "If you already have a good record of damage loss in the field, what would be the use of increasing the resistance to breakage?" The answer is that when you increase the resistance of breakage it is then possible to reduce cost, and yet reduce even further the number of damaged products reaching the field, also making possible a longer life in service.

Cost reduction may be accomplished in many ways such as reducing the gage of steel, taking out braces, reducing packing cost, etc. You can milk out the last drop in cost, and still know you are safe by using a combination of practical plant process tests and the *National Safe Transit* tests for pre-proving the completed PACKAGED PRODUCT prior to shipment.

AFTER THE FIRST



1910

The impact of porcelain enamel on our every day life can be quickly appreciated when a comparison is made between the tub illustrated and the "tub" or machines of today. Yes progress has been made . . . will continue to be made . . . with your cooperation.

PEMCO

FORTY YEARS

Progress continues to assure a Better Tomorrow...!

Traditionally age is regarded as "productive experience". While we may accept this as being true we do it with such reservations that age becomes but the background before which MODERN INDUSTRY operates. Because of this attitude YOU as a PEMCO CUSTOMER are served, not only by FORTY YEARS of EXPERIENCE but by FORTY YEARS of PROGRESS. PROGRESS that has pioneered more FIRSTS in MATERIALS . . . in PRODUCTION METHODS . . . in PROFIT CREATING SERVICE than has been available through any other company in the field of PORCELAIN ENAMELING. Check the history of modern porcelain enameling and you will be surprised how closely it parallels the PROGRESS OF PEMCO . . . and how each step forward has been made so as to add to the success of you—our customer. No one better than ourselves appreciates the fact that in order that we continue ahead YOU too must be successful.

And this we promise . . . never shall we deviate from or shirk this responsibility . . . the responsibility of leadership which with your approval will continue to lighten your load, increase your profits and broaden the horizon of the industry as a whole.

CORPORATION

Baltimore 24, Maryland

Always Begin With a Good Finish

How one company sells the SAFE TRANSIT program

THE following letter and "flyer" shown at right represent the method The Moore Enameling & Manufacturing Company uses to acquaint their customers with their effort to deliver products safely.

West Lafayette, Ohio

Gentlemen:

Does receiving merchandise in an *undamaged* condition interest you? We believe it does.

That is why MEMCO has recently completed extensive research to develop the best packing possible for all MEMCO products of flame and oven proof COOKING-GLASS FUSED TO STEEL.

Evidence of another phase of MEMCO leadership is illustrated on the attached sheet. We at MEMCO are proud to receive the certificate issued by the National Safe Transit Committee which authorizes the use of Safe Transit Labels.

Packaging which meets the rigid standards of the National Safe Transit Program will soon be identified by the Safe Transit Label. Only those who meet the new high standards set up by the committee in cooperation with the Association of American Railroads, American Trucking Association, and American Railway Express are certified to use the label indicating that the manufacturer is *actually* testing his packaged products prior to shipment.

The special Safe Transit Label on cartons will serve two purposes:

First, packages carrying this label will give notice to all handlers that the carton has been tested prior to shipment to meet Safe Transit standards to assure undamaged delivery under normal shipping conditions.

Second, the label will indicate to the trade that the manufacturer is doing everything possible that shipping science provides to assure safe delivery of the merchandise.

Yes, MEMCO is doing the utmost to serve you better even though it involves substantially increased packaging cost. The net result is greater overall profit for our customers.

If mark downs and damage claims can be practically eliminated, you benefit. The end result is more satisfied customers. That is *always* our No. 1 objective!

GLASSTEX, LAFAYETTE, and MEMCO items are now packed to meet Safe Transit standards. Your orders are being shipped accordingly.

The Moore Enameling & Mfg. Co.

From the Editor's mail...

→ *from Page 10*

the Program and been an active participant. The recent acquisition of a new drop tester, along with the shock recorder, vibration and impact testers, completes our facilities for making tests under the National Safe Transit Program.

The development of a standardized method of evaluating a shipping container and its interior packing was a very desirable goal. When such a method of evaluation is directly coordinated with actual shipping experience as is accomplished in the National Safe Transit Program, the procedure is ideal for both shippers and container manufacturers.

The savings which result from reduced losses, elimination of over packing, and time saved by reducing or eliminating trial shipments, along with the intangible good will which develops through undamaged shipments, make this testing program desirable.

Our laboratory is certified under the National Safe Transit Program and is making tests daily for appliances as well as many other types of allied metal products.

W. R. Brooks
Research and Development
The Ohio Boxboard Co.
Rittman, Ohio

International homefurnishings winter market

(Continued from Page 22)

A newcomer at the homefurnishings market was International Harvester Company which exhibited a line of home refrigerators with all-porcelain enamel interiors. Several home freezers were also shown.

The Clark Division of McGraw Electric Company displayed its line of Toastmaster automatic gas water heaters.

Apex Electrical Mfg. Co. introduced an ironer which folds into a tabel-top cabinet when not in use.

"Looking into 1950"

Before the first Marketing Congress held in the American Furniture Mart, January 11, Leonard W. Stratton, vice president of Wieboldt Department Stores, Chicago, discussed "Looking into 1950."

"It is apparent," said Stratton, "that we probably can expect 1950 to be what may be termed a normal year. A year in which we will be thoroughly tested as to our merchandising capabilities. So few of us have had experience in normal years. In a normal atmosphere we must be altogether capable of meeting the requirements of good merchandising."

One of the requirements stressed by Stratton was knowing "how to sell." "Educating our selling personnel is of utmost importance in 1950. The buying public has become keenly interested in correct styling — know what merchandise must go together well and their tastes have been conditioned for attractive, well furnished homes. More and more newspapers and periodicals have recognized this trend and are doing a magnificent job of selling better living, supported by attractively furnished homes. Because of this, we, who are responsible for supplying the public with the answer to their merchandise wants, must see that the merchandise is properly presented and well sold.

"Naturally, we are not only entitled to, but must, sell at a legitimate profit. Have you ever really stopped to consider how much volume you lose because of poorly trained salesmen on your staff, the great risk you take by submitting your greatest asset, a customer, into the care of a bad salesman? Even if the high pressure salesman runs a high average book, the fact remains that customers sold on high pressure basis seldom keep coming back for more high pressuring. It is my prediction that those stores which recognize the necessity for proper, sound selling methods in their customer contacts have the greatest chance for a successful 1950," concluded Stratton.

"Hello, Morning Gazette? We wish to make a SLIGHT ALTERATION in today's Weather Forecast . . . . . "

Silicones in the protective coating industry

(Continued from Page 32)

application will determine the length of time and the temperature required for curing. An average cure may be taken as one hour at 390°F. In many industrial applications the metal surface is exposed to operating temperatures high enough to cure the coating.

Major applications for heat-resistant silicone resin based paints include protective coatings for hot stacks, mufflers and other industrial equipment. The coatings are said to stand up reasonably well at temperatures up to 750°F. Probably the use of aluminum pigments has a great deal to do with this degree of heat stability. Most of the best unpigmented silicone resins will not withstand temperatures over 450°F. If the wrong organic groups are attached to the silicon atoms, silicone resins are little, if any better than a good alkyd resin.

Some of the more interesting uses for silicone finishes where heat resistance is of secondary importance include the use of a silicone white enamel on the reflecting surfaces of light fixtures. In the Gulf area, silicones are used in preparing coatings for store vents and vanes because they resist corrosive atmosphere.

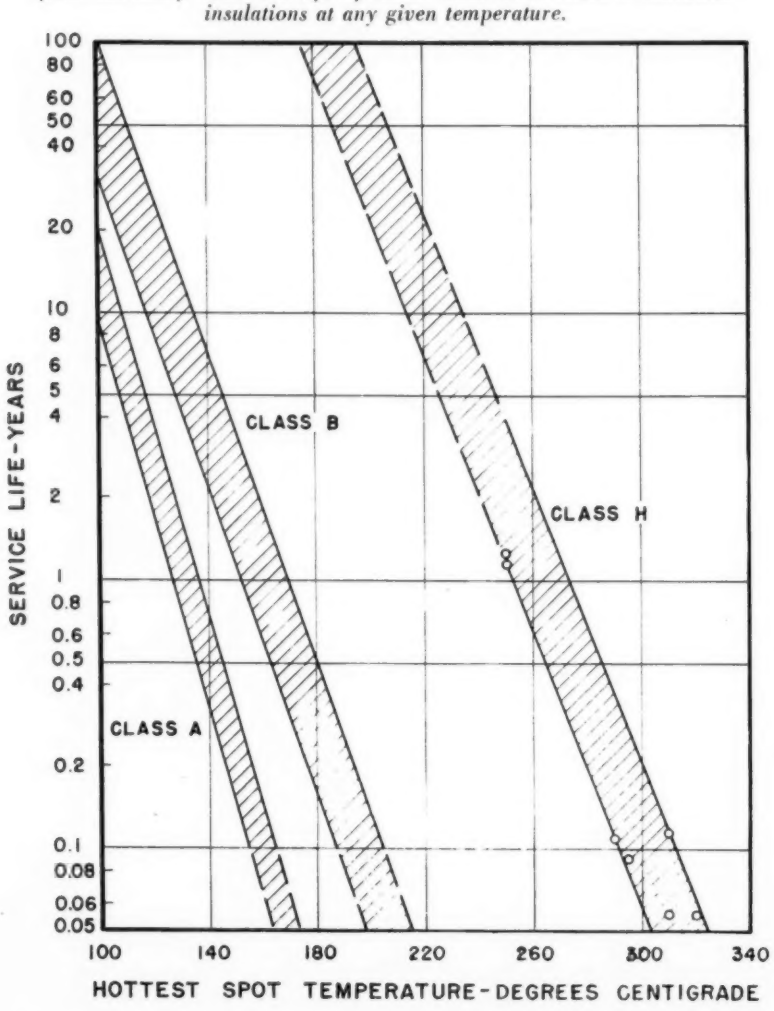
Summary

In most applications the usefulness of silicone resins depends upon their superior heat resistance or weather resistance. In general, silicone resins do not possess enough resistance to abrasion or solvent action to make them acceptable for use on kitchen appliances and similar equipment. Some progress is being made along this line in various laboratories around the country. Flexible and heat resistant silicone baking enamels at a cost low enough to permit large volume use should appear in the not too distant future.

One of the main hindrances to this development has been the relatively high cost of silicone resins. This objection will be eliminated by the production of low cost silicones.

There are two ways in which this can be done. A manufacturer may ignore the most important property of the silicones, heat stability, and make inferior silicones because they are easier and cheaper to produce. The other way is to make products that have maximum heat stability in quantities sufficiently large to get the cost of production down. Manufacturing processes have been designed to make silicon chemicals of the type that have been found to be necessary for the production of the most heat stable silicone resins. During the past three years production facilities have been greatly increased. As markets for larger volumes of these products are developed, lower cost silicones of a quality that will benefit the finishing industry will certainly be made available.

This graph shows that silicone (Class H) insulation in the electrical field has many times the life of either Class A or Class B electrical insulations at any given temperature.



John J. Tyner *— was graduated from Worcester Polytechnic Institute in 1942. He was then employed by Ferro Enamel Corporation, Cleveland, where he worked in the Metallic Soap, Ceramic and Organic Finishes Departments. In 1945, he joined the Cleveland office of Wyandotte Chemicals Corporation. In 1946, he was employed by Dow Corning Corporation, and, after receiving extensive training in various silicone research and product development groups, he was assigned to the Cleveland office. In early 1948, he was appointed manager of the company's Los Angeles office.*

The evolution of deep drawing lubricants

(Continued from Page 29)

(2) There is a capital investment required for the application of these compounds. That is, either a roller or a spray gun setup must be installed, and the cost varies, depending upon the type of blank being processed.

(3) These compounds, being rather sticky, have a tendency to pick up shop dirt quite easily, and this might lead to scoring.

(4) Plastic compounds also must be washed off prior to any metal finishing operations that might be required prior to the enameling.

"Dried soap" compounds

The other type of compound that is becoming a factor are the so-called "dried soap" compounds. The advantages of these compounds are:

(1) They do give good drawing results, particularly where the object being drawn is round, square, or oblong.

(2) They are very easily removed in practically any cleaning setup.

(3) They do away with the untidiness of other types of lubricants. The blanks are clean to handle, the die remains clean, and there is no untidy area around the press. This makes the dried soap film of coating popular with the workmen.

(4) The blanks may be coated far in advance and stored until they are to be drawn. It is recommended that a tarpaulin be used to keep off shop dirt, at least from the top blank and the edges.

The disadvantages to the use of dried soap films are:

(1) There is a considerable capital investment, and in some cases increased overhead, the amount of which depends on several factors:

(a) In practically all cases there should be a chain hoist or overhead conveyor system. The power to operate this equipment is a continual item of overhead.

(b) If the blanks are dirty or oily, it is necessary to clean and rinse them prior to immersion in the tank containing the solution of drawing lubricant. This means that it is necessary to install three tanks, two of which must be heated. Therefore, the cost of floor space and the cost of heating is a continual item of overhead.

(c) For the best results, some type of drying oven should be installed after the soap solution to insure that the coating is dried uniformly and evenly over the metal.

(2) Labor costs for compound application may be higher with a dried soap film than with other types. It usually is necessary to have two or more men to rack the blanks before coating and to unrack them after coating. There is also the cost of transporting to and from the coating department.

(3) There are some types of draws on which the best results are not secured with dried coatings, and the use of other types is preferable or necessary.

(4) Great care must be used in handling the blanks prior to drying. If the blanks are allowed to "jiggle," the coating may be dried on unevenly, with the result that a uniform flow of the metal into the die is not achieved. Also, this coating is hard and will even pit the metal if bubbles are allowed to dry on the surface.

(5) A very minor disadvantage to these coatings is that they may not be removed in a regular vapor degreasor, prior to welding.

Removal of drawing compounds

As mentioned earlier, all of the

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"OOPS, sorry, Mrs. Logan! I didn't realize you were bathing Mr. Logan!"

MR. ADVERTISER...

how well do you know these people?

The major appliance and allied metal products field will manufacture and sell products valued in the *billions* of dollars during 1950.

As a producer of materials, equipment or components, or a service organization needed in this vast producing market, how well do you know these people?

As the only trade publication designed to serve this single field, **finish** knows its readers, works with them, and works for them.

Much of the best technical data and practical plant processing information presented is written by these **finish** readers, the men who operate and manage the country's leading plants.

Sincerity of purpose, editorial alertness, and unbiased presentation of the facts have won for **finish** a reader loyalty, from president to the man in the shop, that is hard to match.

Yes, **finish** has shown a rapid and continuous growth in advertising too, and your advertising counsel will be the first to point to editorial strength and reader acceptance as the logical first reasons for this growth.

Get acquainted now — with **finish** and with **finish** readers. They represent a multi-billion dollar field.

finish magazine

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Telephone MUrray Hill 7-5063

ADVERTISERS' INDEX

"I saw your ad in finish"

CLASSIFIED ADVERTISING

WANTED—Experienced Porcelain Enamel Supervisor capable of assuming complete charge of department in modern plant. Location Kentucky. Excellent opportunity for right party.

Address reply to Box 250, c/o *finish*, 360 N. Michigan Ave., Chicago 1, Ill.

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compounds described are for the porcelain enameling industry and should clean in any well set up and managed pickling room, and there are several proprietary cleaning compounds that will remove them all. In general, we feel that the soluble oil type should be removed in a rosin cleaner which contains a coupling agent to make a stable emulsion of the mineral oil content. Fatty emulsions and plastic type compounds should be cleaned in a fairly high alkaline solution, because they contain saponifiable matter. A very important point in the cleaning of plastic type compounds is that the temperature of the alkali bath should be above the melting point of the compound. On soap type, and dried soap coatings, ordinary good cleaning ing practice should suffice.

In conclusion, we wish to say that we do not believe that the perfect universal metal drawing compound for the porcelain enameling industry has been as yet produced and may never be produced. However, we do believe that by carefully weighing the advantages and disadvantages of the various types of compounds on the market today and fitting them to the conditions prevailing in any specific plant, that a practically ideal drawing lubricant may be selected.

Adapted for *finish* from a paper before the Porcelain Enamel Institute annual forum for plant men.

Is the NEW trend to tough *single* coat porcelain enamels?

Titania enamels are generally recognized for their resistance to fruit juices, whiskey, nail polish removers, heat, weather, house-cleansers—

But what about shock—the worst enemy of porcelain enamels?

Titania enamels offer resistance to shock too. However, the general feeling has been that until thick, frangible coats of enamel are eliminated, the ultimate in shock resistant films—one that will bend yet adhere to metal—cannot be approached. New help toward the solution to this basic problem—a single, tough, thin enamel film is offered by TITANOX-TG.

This new, non-pigmentary grade of titanium dioxide, recently introduced by the Titanium Pigment Corporation, is specially processed for ceramic formulation. It affords maximum opacity in a single, thin film. Easy-flowing TITANOX-TG is readily handled for efficient production of frits yielding enamels having maximum coverage measurable in mils of film thickness.

Moreover, uniformity of enamel properties, especially color, is assured through uniformity of chemical composition. For your current titania frits and in the development of better enamels for the future—the logical choice is TITANOX-TG. Write today for samples, prices and further information. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.; 104 South Michigan Avenue, Chicago 3, Ill.; 2600 South Eastern Avenue, Los Angeles 22, Calif. Branches in all other principal cities.

®TITANOX

the brightest name in ceramics

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

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spend the largest portion for new machines to cut costs; 26% in modernizing existing equipment; 12% for replacement of worn out and obsolete equipment; and 10% for materials handling equipment.

The study was conducted to provide a factual guide in planning the Society's Industrial Cost Cutting Exposition to be held in Philadelphia in April.

PREDICT SALE OF MILLION ELECTRIC RANGES THIS YEAR

Leaders in the electric range industry are expecting 1950 to be another million electric range year, according to William F. Ogden, chairman, electric range section, National Electrical Manufacturers Association.

If 1,100,000 new ranges are sold this year, as predicted, the saturation by the end of 1950 will be only about 20 per cent of all wired homes, stated Ogden, who also is manager of product planning for Hotpoint, Inc.

SERVEL EXPECTS 50 PER CENT MORE SALES DURING 1950

Substantial retail price reductions, greatly expanded advertising expenditures, production schedule increases, a large distributive organization increase, plus gas utility cooperation were all cited by W. Paul Jones, president of Servel, Inc., as reasons why the company expects 50% more sales in 1950.

"For Servel and practically every company in the appliance industry, the year 1949 was a year of awakening," Jones said. "A slipping sales graph has pointed toward the need for the type of daring planning which will result in increased sales during 1950."

VITRO BUYS PIGMENT FIRM

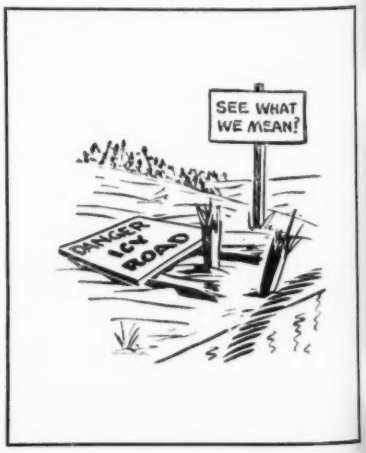
The Vitro Manufacturing Co., Pittsburgh, has announced the purchase of assets and business of Forche & Smith, Falls Creek, Pa., manufacturers of iron oxides.

YOUNGSTOWN NAMES CURTIS ASSISTANT TO PRESIDENT

Frank Purnell, president, The Youngstown Sheet and Tube Co., announced that Myron S. Curtis, manager, sales promotion department, has been selected to succeed Roy M. Welch as assistant to the president. Welch retired at the end of 1949.

PENNSALT APPOINTMENT

Ernest Kopecki, formerly with *Iron Age*, has joined Pennsalt as a sales service representative in the special chemicals department, according to Joseph Duffy, department manager.



"the NST Program was the answer"

Association of American Railroads
Chicago, Illinois

Claims on appliances and sanitary ware, in a single year, had risen 48 per cent to $6,700,000 for 1948. There were times when more articles were held for repair parts than went to sales. Probably those losses exceeded railroad losses. Even a blind man could see that something had to be done. It was, and a more thorough and efficient job we have yet to see.

The "National Safe Transit Program" was the answer. No, it wasn't inspired by the railroads. On the contrary, it took them by surprise—a very pleasant surprise, by the way. Here was a complete program, developed by some of the most competent industrial packaging, production, and materials handling engineers.

Based upon extensive knowledge gained over the years, this program shows manufacturers how they can stop these losses before they occur—by testing the *packaged product* in the factory to make certain that it will withstand the risk of damage common to all forms of transportation and handling before and after shipment. No longer need weak designing or manufacturing errors or package deficiencies result in "epidemic" damages. Just about everything of this nature can be caught and corrected by the manufacturer when these test procedures are followed faithfully. No theory about this. Leading manufacturers who have had the program in full operation have been accomplishing this very thing.

Enthusiastic endorsement of this program has been given by the railroads individually and by this association. They like especially the purely voluntary character of the effort to solve the problem . . . The recommended procedure certainly is far superior to the method ordinarily followed of analyzing damage causes over a long period of time, with identical failures occurring, each one adding to the damage with so much loss and annoyance to all concerned.

The claim prevention departments of American railroads are busily engaged in an all-out effort to reduce the damage-risk of these products through careful handling of individual shipments, careful switching of cars, personnel training, and effective systems of reporting improper service to the yard or station responsible therefor.

To those shippers who have not adopted the National Safe Transit Program we say: Please give it the consideration to which it is clearly entitled. By no means has the task been accomplished.

Lewis Pilcher
Executive Vice-Chairman
Freight Claim Division